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THE CHICAGO CONVENTION.

When you read this, it will be either June 11th or the 12th, and you will only have little more than two weeks to arrange your business affairs so that you can attend the great convention of the National Association of Master Plumbers in Chicago on June 28-30. Of course, you are going unless great distance or extraordinary business tangles prevent. There should be no doubt in your mind about this. Three days' association with master plumbers and steam-fitters will brush the cobwebs out of your mind, will straighten out warped portions of your thinking-tank and will furnish you with an increased sense of the dignity and importance of your profession.

One thing you must be sure about and that is to let everybody know in the office and at home that you are going. Some people forget to do this, and the result is that the foreman reminds you of Johnson's job which has not been taken care of and might have been, and the ruler over your domestic troubles calls your attention to the fact that she has asked the Smiths to supper on June 29th. Under pressure of local circumstances, you weakly yield and 12 months have to elapse before you have another chance to meet your fellow-craftsmen in national assembly. One man that we knew thought so highly of the good he received from attending conventions that when he received his new year's calendar, he entered up for 30 days previous to convention date on each day's slip "I am going to the National Convention." And he did. The last we heard of him he was boasting about his 37th annual attendance. He had a right to boast for he spent the time and money. He reminded me of the statement of Josh Billings who said that the rooster was not so much respected for his crow as for the spurs that backed up the crow.

We have published during the past two or three weeks in "Domestic Engineering" a number of interesting notices concerning the national convention, the quantity of exhibits, the varied entertainments to be provided, and the great gathering to be anticipated. We invite all the visiting plumbers and steam-fitters to avail themselves of any privi-

leges that "Domestic Engineering" may be able to offer them during their stay in Chicago. Our offices are on 325 Dearborn St., on the 8th floor of the Como Bldg., only two blocks away from the Orchestra Hall, the headquarters of the National convention. (Revelation. Chap. 6, Ver. 1, last phrase.)

THE COST QUESTION.

At the recent convention of the National District Heating Association held at Toledo, O., June 1-3, Charles R. Bishop, Lockport, N. Y., in his address put the cost question in a nut-shell, in the following sentences:

"No manager should **guess** at what his costs are—he should **know.** The really necessary daily records are not many nor are they difficult to keep and will not call for additional men. Try it and you will keep it up with increasing net profits as a direct result."

These sentences were uttered by a man conversant with all complex details of a large business divided into separate departments, each of which is a small business by itself. It is the records of these small departments, carefully kept, that enable the large business to show its net profits. There should be no guessing in the smallest business as to costs and no hazy marginal lines as to profits. How hazy this line is was recently shown in a letter received by us referring to some previous editorial statement on the necessity of allowing oneself a salary. We said that if a man could not pay himself a salary equal or greater to that of his best-paid employee, he should go out of business. Our correspondent says:

"When I come to figure up my business for the past year, I find that I am ahead an even $1,800. Now this allows for everything but a salary for myself. I am sure that I am worth anywhere from $1,800 to $2,000 a year to any man in the business. Now according to some of the philosophy I have seen preached in your paper, I am not worth that to myself, or if so, and I pay it out to my account, then I go into the hole. If I go out of business what in thunder can I do to get as much money as I am getting, as I have no other business or trade?"

The above statements are certainly hazy enough. He found he had $1,800 after paying for everything but a salary for himself. Does he mean that he paid for the living expenses of himself and family in the everything? If not, did he live on air during the previous 12 months? We always understood that out of his salary a man would pay his living expenses. The way we understand it he has been taking from the business from month to month what he needed and winds up with a profit of $1,800. He has evidently not been able to distinguish between salary and profit.

Hazier still, he said that if he pays himself that $1,800, he goes into the hole. We have been playing cards for a good many years and never yet saw anybody go into the hole because he broke even. This must be some new kind of a game.

Still more strangely, he said that he is worth $1,800 to any man in business, but if he goes out of business for himself, he cannot imagine where he can pull in as much money as he is now doing. This is very confusing, and we have had several headaches trying to straighten it out. We have come to the conclusion that a man who is worth $1,800 to any one in business, and who is only succeeding in earning $1,800 for himself may well be better off by earning the $1,800 without any responsibility. The trouble with the whole business is that we are not supplied with his figures and can only guess from his letter that he has an ill-defined margin between salary and profit.

PUBLIC SANITARY WASH-HOUSES.

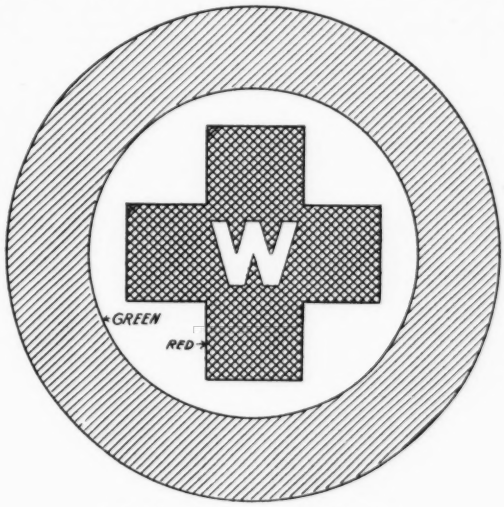
We are making steady advance in the work of arousing public sentiment in public-comfort stations and it is to be hoped that every member of the trade will bear his share of educating the public. Read the story of the good work done in Pasadena, Cal., described and illustrated in another part of this issue and you will appreciate the possibilities that lie before every one, no matter how small the town.

The city of Glasgow, Scotland, possesses a number of public-spirited citizens who have earned for that city the reputation of being the highest type of municipal-ownership development. Some years ago, Glasgow built a number of sanitary public wash-houses with all modern conveniences. In these, women living in small apartments and under restricted conditions can take a basketful of clothes to a public wash-house and for four cents an hour can have a compartment and use all the machinery for washing and drying and at the end of an hour can take the clothes back washed and dried. These have proved a great boon to the poorer classes and the establishment of similar institutions in all congested districts of towns and cities should be encouraged. Public baths, public parks, public-comfort stations, public wash-houses—all these make for sanitation, sanitation gives life, life abundant entrains good business and good business assures profit. We want them all. Let everybody undertake a little missionary work on the side.

Knockers never win; winners never knock.

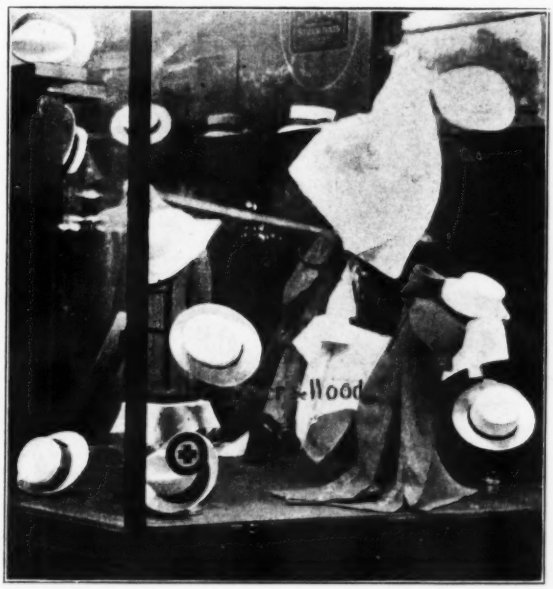
PASADENA A PUBLIC-COMFORT CENTER.

Pasadena, Cal., is showing the progressive character of its citizenship by its recent effective crusade on behalf of public comfort. This enterprising western city will soon be equipped with a complete, if private, series of public-comfort stations. Some of the leading merchants of the city have agreed to maintain such stations for the benefit of the public. Their location will be indicated by a symbol as shown in the accompanying illustration, the outer circle being green and the inner cross red bearing a letter M for men, and W for women.



The New Public-Comfort Symbol.

A. C. Shaver, plumbing and building inspector of Pasadena, has been largely instrumental in bringing about this public sanitary advance. Over thirty prominent merchants have lent their practical aid to the public-comfort scheme among whom are the following plumbing concerns of Pasadena: E. O. Nay Co., 186 E. Union St.; Munger & Munger, 1773 E. Colorado St.; Pasadena Gas Appliance Co., 34 N. Raymond Ave. It is expected that the citizens of Pasadena will immediately realize the great favors accruing to them by this manifestation of public spirit. Mr. Shaver is to be congratulated on the success of his efforts.



The New Public-Comfort Symbol on Store Windows.

NEW ENGLAND NOTES.

The contract for plumbing the new Webster school at Orono, Me., has been awarded to Fred C. Park and work will be commenced at once.

The board of health of Middletown, Conn., has appointed George Benn inspector of plumbing to succeed Ansel G. Hayes, who resigned.

Charles Emery, who has been employed by F. W. George at Mills River, Vt., has given up his place and removed to Woodsville, Vt., where he is to go into the plumbing business for himself.

Bids for the new heating and ventilating system which is to be installed in the John Hancock school at Quincy, Mass., and for which the city government has appropriated $6,000, have been received by the commissioner of public works. There were only two bids, Stone & Underhill, $4,998, and Lynch & Woodward, $5,370. The contract will probably be awarded to Stone & Underhill.

Former Alderman George S. Coggswell, a member of the former firm of Furniss & Coggswell, plumbers, of Pittsfield, Mass., was married on Memorial Day to Mrs. Ella Frances Plough, of St. Paul, Minn., the ceremony taking place at the home of Miss Alice B. Sage, of Sheffield.

The Searsport Heating Co., Searsport, Me., is planning to raise the building which it now occupies and put a basement beneath, to be used as a storeroom.

The Aetna Heating Co., New Britain, Conn., has just signed contracts for installing heating and ventilating apparatus in the following buildings in New Britain; eight-room addition to the Smalley school, eight-room addition to the Smith school, taking out the old system of heating and ventilating in the Kelsey and Sheffield street school and replacing the same with a new plant. The company also has the contract for installing a heating and ventilating plant in the new schoolhouse which is being erected at Kensington, Conn.

The water commissioners and the master plumbers of New Britain, Conn., have had several conferences within the past few weeks for the purpose of endeavoring to secure a uniform agreement among the plumbers that hereafter shut-off valves will be placed eight inches from cellar walls. The object of this is that meters can be attached more readily.

Contracts have been awarded at the office of the constructing quartermaster of the New London Artillery district at New London, Conn., for the construction, plumbing, heating, and other work in connection with new buildings at Fort Terry, N. Y. Michael O'Connell, of New London, was awarded the contract for constructing, plumbing, heating, electric wiring, etc., for a guard house, his figures being $20,996. The sub-contracts have not been let.

Three Pittsfield, Mass., plumbing firms, H. L. Doran, M. F. Condroll and Cooney Brothers, have withdrawn from the Master Builders' Association of that city. All of the other concerns in the city have signified their intention of remaining in the association by depositing $500 with the secretary. These three firms have at no time had any labor troubles.

Henry O'Connor, who for some time past has been employed as head plumber at the Hitchcock Hardware Co.'s establishment at Watertown, Conn., has resigned his position with that company and started in the plumbing business for himself, locating at the corner of Woodruff and Scott avenues.

Frank Pritcher, Stratford, Conn., will soon open a plumbing shop at Westport, Conn.

THE FOOL-KILLER WAS OUT OF TOWN.

A recent press-clipping tells of a plumber who became convinced that eating fire was an easy matter. A local vaudeville artist had done it and our plumbing friend felt sure that what the artist could do he could do also. After watching several performances, he gathered his friends to give an exhibition of his skill. He managed to burn powder in his bare hand without being burned, but when he turned his mouth into a gasoline torch, there was something doing. It took several buckets of water to put him out, and he was much put out in consequence of his failure. We are afraid that he must be classed with the man that rocks the boat.

A PLUMBER'S DIARY

BY PHOENIX

Introduction.

This plumber learned both branches of the craft, mainly by hard knocks. He was not born with a silver spoon in his mouth nor a ready-made education in his head.

For the benefit of those who come after and perhaps to help them to avoid some of the mistakes of the past, he wishes to set down some of his experiences extending over a period of a quarter of a century in various parts of the country.

Some of the characters in it are yet alive and remarkably husky. Their names will therefore be sidetracked or disguised.

I.

May 18.—"Busted by Thunder!" Monday morning and "nothing doin'" at the shop in this God-forsaken town!

Guess I'll be "training" out of here tonight, as I heard of a bunch of work down the Boston way and this New York state climate don't become my peculiar style of complexion anyway. Six months in this burg and never a cent ahead. No more for mine. I'll hit the "blind" tonight for sure.

May 20.—Well! I made it all right, and here I am in the land of the Pilgrims.

Looks mighty queer rambling around in this ancient country. Some of these houses are over 200 years old with plumbing "accordin'." I wonder if Miles Standish ever done any plumbing? I had a hot old time coming through the Hoosic tunnel. Was 'most smothered by smoke. Beating the baggage ain't what she's cracked up to be after all. Maybe some day I'll ride the cushions all right if I ever get into this game on the ground floor.

May 21.—Went into another plumbing shop today and struck 'em for a job.

The shop had small front windows done up in artistic patterns by some robust cobwebs. The boss was as cheerful as a cake of ice. He asked me for my recommendations. I said, "The seventh grandfather on my mother's side used to tend the fire place in John Endicott's kitchen; does it go?" He said, "No, but you can." So I mosied on.

Finally I struck a fellow who was just starting in and needed some extra help and wasn't particular about my pedigree. He also "stood good" for a week's board, but I'll have to bum the "makins" until pay-day.

May 22.—This morning the boss said, "Well, Bo, where's your tools?" And I had to tell him that they were held up for six dollars by an uncle of mine in Syracuse. He said don't your relative have any confidence in you and I answered, "Not that one, anyway." We dug around the shop and finally got together a sort of kit—this shop wasn't used to the best anyway—and the boss put me out on a sink job.

Upon a small-sized mountain back of the town was one of those cork-screw-haired New England maids of about fifty (and then some). She wanted a butler's sink set in her pantry.

You see the old freak had been over to England and seen some pre-Noahawistick work over there and wanted a copy in copper of these old masters.

Now the boss had his ideas of what was right and otherwise, and so did this nimble Yankee maiden. Blame her hide, she cost me my job, for to please her fancy I set the sink unusually high, and when the boss saw it you should have heard the roar he put up.

Well, I got a color of money out of it, anyway. Better luck next time.

May 23.—Looks like Sunday would be a good day to blow out of here.

Guess I'll hit for the Nutmeg state. It can't be any worse and I just got to have a new suit soon.

May 27.—I blew into my present location on general results. Saw an ad. in one of the papers: "Wanted: A plumber for a shop in a country town. Good job and steady wages for a man who knows his business." That looked rather good to me in my present financial embarrassment, and so I tackled the place on suspicion. I asked several people where the "Universal Plumbing, Heating and Implement Co. held out and finally ran them down.

Entering the hardware store I said to the clerk: "I see you're advertising for a plumber?" "A what," says he. "Why a plumber," I answered. "First thing I knew about it," he replied; "you'll have to see Mr. Stoveshaker, the boss. He'll be back in about an hour after he gets the phosphate unloaded."

While I hung around waiting for his nibs I began to get pictures in my mind. Later I found that they were no dreams.

When Stoveshaker appeared I struck him for the job. "What I want is a steady, sober man," said he. "A man who knows plumbing and can put in hot-water jobs and steam heat and who can do gas-fitting and who is an extra fast, first-class tinsmith, and who can do general repair work. For such a man I have a steady job and no lost time, 10 hours' work and $2.25 a day." Says I to myself he's a live one.

Now I began to find out that it was a good plan to make each job meet the expenses of getting to it (at least), so I told him I'd take the job and see how we "hitched."

June 8 (Sunday).—Am I a freight handler, laborer, clerk or mechanic? Blamed if I know. It's Hobson's choice. When I began work in this joint at $2.25 per day-and-a-half-of-hours, the first thing the boss did was to make me a present of a key and told me that as my department "wasn't rushing" I could get down early and sweep out the store before helping straighten up the stock.

I did. Seems like I ain't got any more nerve than a rabbit, lately.

Last week I mended seven wash-boilers, hung some "spouting," sold eleven dozen china eggs, opened up nine tons of nails, put in two water-fronts, set a couple of pumps, loaded up five windmills and figured up a bath-room outfit for the parsonage of the M. E. church.

June 12.—Well, we landed the parsonage job and the boss celebrated by giving me a Pittsburgh Stogie, and he's promised to come across with a quarter more a day if all goes well. Oh, I have won a home here all right, but soon the little birdlet will have winged away from this nest which is too blamed snug. I just want to get at that parsonage job and do it right.

DOMESTIC ENGINEERING

THE OPEN DOOR TO WEALTH
IN HEALTH

TREATING SPECIFICALLY ON
SANITARY PLUMBING
HEATING
VENTILATING
STEAM-FITTING

ITS ESSENTIAL AIMS ARE THE ADVANCEMENT OF PRIVATE AND PUBLIC CLEANLINESS AND COMFORT AND THE FURNISHING OF STIMULATIVE EFFORT TO THOSE ENDEAVORING TO OBTAIN PERFECTION IN NATIONAL SANITATION.

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NOTICE TO ADVERTISERS.

Copy and cuts for advertisements intended for a particular issue should reach the office of Domestic Engineering on Monday of the previous week if it is desired that a proof of the advertisement shall be submitted. New advertisements can be received up to noon of Monday of the week of issue, but no proof can be shown.

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SPECIAL NOTICE TO READERS.

Our readers are invited to send in articles on any topics covering sanitary interests as outlined above. Photographs and drawings with descriptions of special interest to plumbers and steam-fitters are welcomed. "Domestic Engineering" pays at space rates for all articles, notes, criticisms and news data so contributed.

CONVENTION DATES.

June 13, 1910.—Annual convention of the Tennessee Master Plumbers' Association, at Knoxville, Tenn. The officers of the association are: President, Fred Fox, Jr., Chattanooga; secretary-treasurer, R. O. Carlin, Chattanooga, Tenn.

June 13, 14, 15 and 16, 1910.—The 22nd annual convention of the National Association of Master Steam and Hot Water Fitters, at Atlantic City, N. J. Headquarters at the St. Charles Hotel. President, Charles A. Geoghegan; vice-president, Edward B. Denny; treasurer, Juan A. Almirall; secretary, Henry B. Gombers, 260 West Broadway, New York city.

June 14 and 15, 1910.—Joint meeting of the Eastern Supply Association and the Central Supply Association, at Toledo, O. Headquarters at Hotel Secor. The officers of the Eastern Supply Association are: President, P. M. Beecher, Syracuse, N. Y.; first vice-president, John A. Murray, New York City; second vice-president, F. H. Locke, Boston; treasurer, F. A. Bucknam, New York City; secretary, Frank S. Hanley, 261 Broadway, New York City. The officers of the Central Supply Association are: President, Frank Collins, Toledo, O.; first vice-president, Geo. H. Gorton, Kansas City, Mo.; second vice-president, P. J. Frey, Minneapolis; treasurer, E. F. Niedecken, Milwaukee; secretary, Paul Blatchford, 1524 Tribune Bldg., Chicago.

June 21 and 22, 1910.—Annual convention of the National Association of Brass Manufacturers, at Atlantic City, N. J. Commissioner, Wm. M. Webster, 1112 Schiller Bldg., Chicago.

June 28, 29 and 30, 1910.—The 28th annual convention of the National Association of Master Plumbers, in Chicago. The officers of the association are: President, Walter D. Nolan, 721 14th St., N. W., Washington, D. C.; vice-president, A. Selden Walker, 341 Main St., East Orange, N. J.; secretary, Samuel Artz, 3028 M St., N. W., Washington, D. C.; treasurer, William McCoach, 1607 Sansom St., Philadelphia.

June 30 and July 1, 1910.—The semi-annual meeting of the American Society of Heating and Ventilating Engineers, at St. Louis, Mo. The officers of the society are: President, Prof. J. D. Hoffman, Lafayette, Ind.; first vice-president, R. P. Bolton, New York City; second vice-president, S. R. Lewis, Chicago; secretary, W. M. Mackay, New York City; treasurer, U. G. Scollay, Brooklyn, N. Y.

CHICAGO DELEGATES TO THE CHICAGO CONVENTION.

The Chicago Master Plumbers' Association has elected the following delegates to the 28th annual convention of the National Association of Master Plumbers, to be held in Chicago, June 28-30, 1910: P. M. Murphy, C. J. Herbert, J. E. Baggot, M. J. Corboy, P. J. Foley, Wm. Rediekse, E. J. Benning, M. L. Mandable, C. C. Breyer, F. P. Schuster, A. W. Wills, E. C. Wagner, R. J. Powers, D. Whiteford, Thos. Beggs, J. J. Wade, D. J. Hickey, C. T. Byrne, W. F. Bahn, Thos. Conlin, C. A. Dreier, S. J. Loula, A. C. Hickey, T. C. Boyd, A. Morrison, J. C. Naughton, A. W. Bahn, P. Sanders, Wm Hanrahan, C. E. Bachtold, P. Feltmann, D. J. Barry, W. G. Woods, R. J. Arnold, L. Claussen, J. L. Corcoran, Wm. Downs, C. P. Hulbert, Jos. Killeen, G. A. Larson, F. J. Dillenburg, Thos. Hanley, Paul Redieske, Jos. Scheuer Wm. Gawne, J. J. O'Shea, D. W. Beggs, C. H. Jesperson, Fred Grosch, F. W. Page, J. H. Roche, G. Franklin, P. Nacey, A. Nilson, T. J. Powers, Henry Breyer, Jos. Reilly, J. Kleker, Chas. Law, A. Dornbos, J. Coupland, W. A. Bunge, J. G. Weber, W. H. Cummins, W. K. Knauss, D. J. Rock. Ex-officio: Carl J. Stein, Wm. J. Lang and C. J. Boyd. Alternates: T. J. O'Malley, Geo. Schey, W. J. Morris, Chas. Kruger, J. C. Ladd, F. V. Gilbert, W. M. Fetridge, J. Cepican, Theo. Dickens, F. J. Ruh, J. J. Dunbar, J. J. Carty, H. Swade, Jos. Sattler, T. G. Irving, Geo. J. Feldkamp, Geo. Lillig, R. T. Lord, D. A. Verity, L. G. Barnard and J. Mulley.

A PRACTICAL MANUAL OF STEAM & HOT-WATER HEATING

BY EDWARD RICHMOND PIERCE

SECTION IX.

The Table P is given as showing the probable quantity of air, in cubic feet, passing through a flue having a sectional area of one square foot, like a 12x12 chimney, at various temperatures of difference and height.

Table P.

Showing probable amount of air discharged per minute in cubic feet from a warm room through a 12x12 in. Chimney by natural draft.

Height of Flue in feet	Excess of Temperature of Air in Flue Above External Air									
	5 deg.	10 deg.	15 deg.	20 deg.	25 deg.	30 deg.	40 deg.	50 deg.	100 deg.	150 deg.
20	108	153	188	217	242	265	306	342	...	...
25	121	171	210	242	271	297	342	383	541	663
30	133	188	230	265	297	325	375	419	593	726
40	153	217	265	306	342	375	431	484	684	838
50	171	242	297	342	383	419	484	541	765	937

It will be found easy to calculate fire-place loss approximately close from above table. The height of residence-chimneys above fire-place rarely exceeds 30 ft. and the average temperature of flue, unless it receives warmth from some other flue in the stack, rarely exceeds 50 deg.

If some other flue, as the boiler flue or kitchen-flue, is alongside the fire-place flue, the temperature of flue may be as high as 150 deg. at times above external air.

The cubic feet in table is per minute. To find hourly discharge multiply by 60. To find loss from fire-place throat, divide hourly loss by fractional portion of square foot corresponding to throat-opening. Suppose a fire-place throat to be 4x12 in.=48 sq. in. Then 48/144 of hour loss under conditions existing as shown from use of table, would be the B. t. u. loss per hour from fire-place as already illustrated. Thus, with external air at 30 deg. and chimney 50 deg., the difference being 20 deg., the loss per sq. ft. is probably 265 cu. ft. per minute. An opening 3x12 in. equals 36 sq. in. and 36/144 of 265=66.25 per min; 66.25x60=3,975 B. t. u. per hour as previously stated.

To still further emphasize the great importance of fire-place openings, compare the case of window-loss with the fire-place thus considered. A window under normal winter wind-velocity, when room was 70 deg. and zero outside, would cool 76.3 cu. ft. of air per hr. per sq. ft.; see table N. As we find the fire-place loss to be 3,975 cu. ft. of air per hr. and the loss from a square foot of window to be 76.3, it follows that $3{,}975 \div 76.3 = 52 +$ sq. ft. of window, or about the equal of two windows, 3 ft. 4 in. $\times$ 7 ft. 10 in., or 26.11 sq. ft. each.

It may seem to the reader that with such a multiplicity of conditions under which heat is lost from a building that it would be a hopeless task to undertake to supply and maintain any regular temperature. But, on the other hand, the more accurately the known sources of loss are collected, the more certain does the contractor become of his ability to secure perfectly satisfactory results. And it might be said also the less inclined is he to rely upon "Rules of the Thumb" when figuring for radiator surface required.

If one should attempt to describe in detail all the various acts performed in dressing one's self in the morning to one who had never required clothing, it would probably seem to that one, that mighty little time would be left after the dressing was completed for anything else.

It is certain that no rules can be given that will obviate the use of sound common sense at times. It is well to remember, nevertheless, that the more care given in the beginning to the simple details which have been described as necessary while measurements are being made and no material is being used except pencil and paper, the more certain will the fitter become as to the final net cost of the job when his garantee as to temperature has been filled and he is ready for final settlement with his client for the completed job.

With an acquaintance among steam-fitters, extending from the Atlantic to the Pacific and from the Great Lakes to the Gulf of Mexico, I can state unequivocally that those men who are really making good money in their profession are:

Those who take the greatest amount of time and care to ascertain all probable sources of heat-loss from a given job before commencing to figure on it.

Those who exercise the greatest care in figuring the amount of surface needed in the radiators, to overcome each loss when it is apparent.

It is the men who use one or or two short-cut rules to cover any sort of house-heating installation that comes to them, who are continually getting into trouble over their unsatisfactory jobs.

These "short-cut rule" men may get their bids in sooner than the careful fitter "who knows" but the finish of the job and collection in full from a satisfied client will, 9 cases out of 12, come first to the careful man "who knows."

There are some steam-fitters doing residence and small building work, in various sections of the country who

have no knowledge whatever of high-pressure sky-scraper heating jobs, but who do know how to figure a residence properly for any gage pressure required from 10 or 12 lb. less than atmosphere to 30 lb. above atmosphere. To these men, for they are few (may their number increase)-a set of specifications calling for a half-dozen different temperatures in various separate rooms over a house, coupled with a boiler-gage pressure of specific amount, is no staggering proposition. It would be to the fitter who is trying to cover everything with a set of guess-work rules, or to the fitter who only has one rule, based to be sure upon wall exposure, glass exposure, and change of air in the rooms, but who has not the faintest idea whether the pressure called for by the specifications would agree with his rule or not.

There are thousands of steam-fitters in this country today, big concerns and little ones, who are continually attempting to fit a rule calling for 10-lb. pressure temperature in **radiator,** to a contract that calls for a 2-lb. pressure at **boiler.**

These are the people who are having trouble with the new boiler-ratings and who are sure radiators are much overrated by the manufacturers. These are the people to whom the careful detail of measurement and the bringing of all losses to the only basis of measurement of heat known, the B. t. u., or its foreign brother the calorie, are either unknown or are considered by them as beyond their comprehension. As can be seen there is nothing mystic or unusual in bringing all losses thus far found to a B. t. u. basis. In fact, it is the proper method, and as the discussion proceeds it will be seen that it is the logical thing to do at every stage of the proceedings.

If the distance between two points is desired, one naturally measures it by feet or fraction thereof, and does not attempt to do it by getting a cubic foot of the intervening substance and guessing at it. Or, if it is desired to know how much water will be required to fill a cask that is leaking, so that it will just stay full, the most direct way is to measure the quantity leaked out in a given time, in order to find out how much in quantity must be replaced in a given time. It would not be a logical or very successful way of going about the question of exactly replacing the leakage from the cask by finding its cubic contents and guessing that from 30 to 40 quarts or gallons per hour would about do.

It would be more logical to measure the loss per hour and, having fixed some degree of velocity or pressure at which you would pour the water back into the cask, say that it would require a certain quantity per hour to offset the leakage out of the cask. But if the movement, the velocity, or pressure of the returning water were changed from the condition fixed by the rule, either more or less water would be supplied than the balancing of leakage required. And that is what happens to the steam-fitter who attempts to fit a rule adapted to 10-lb. pressure-temperature in the radiator to a 2-lb. pressure at boiler condition. He does not get heat enough. (See Section IV, Dom. Eng., April 30 ,pp. 105, 106.)

Now that architects are generally calling for results with boiler-pressure stated in advance, and final settlement is to be made when the temperature demanded by contract is secured under conditions stated, and boiler-pressure required has not been exceeded, it will not do to overlook the many little sources of loss, the little leaks. If you do, when settling time comes you may be obliged to spend many times over, in adding sections to radiators and in other ways, what the cost to you would have been to have taken time to figure out these losses in the beginning.

It is much cheaper to pay one man for an hour or two of time in properly figuring a job, than to pay fitters and helpers for several hours' time for extra work and the manufacturer dollars for material that should have been provided in the beginning, if proper attention had been given to those wind-exposed rooms, or that floor with no cellar under it, or the fire-place that was overlooked, or some other bad loss of heat, of B. t. u.

It is very certain that if the total loss of heat under all conditions was the same, a simple ratio-rule would suffice to cover all conditions. It is evident such conditions do not apply. It is also very certain that if there was never any call for heating except for 10, 15 or 20-lb. pressure of steam at boiler, that one rule would answer for everything in steam-heating. But the fact is, architects and owners call for boiler-pressures varying from 2-lb. gage at boiler to 60-lb.

Any rule that cannot be made to supply the requirements of any condition of boiler-pressure, which may be called for in residence-heating, will hardly fill the requirements of the steam and hot-water fitters of today.

That a simple rule, easy to understand and apply, is obtainable, and is the logical outcome of the natural laws involved in heating by steam and hot-water when once those simple laws are understood, we are trying to demonstrate.

There are a few more minor losses of heat from a room that should not be overlooked, but often are by careless estimators. A very frequent source of trouble is second-floor rooms, whose floors also act principally as the ceiling for an open porch. Very often a half-inch hardwood porch-ceiling comes to be all there is between the chamber floor-boards and "all out-doors."

In these days of hardwood floors and no carpets, the protection to the room is slight from such a floor, and the heat-loss tremendous. Floors over cold cellars or over plain open space, must be considered. In the South and Middle West, quantities of fine houses have little cellar room. They are built on piers and stand just high enough above ground to be dry and permit a draft through between floor and ground.

It is with such conditions as these that considerable judgment must be exercised. No hard and fast set of ratio-losses can be fixed.

The best that can be done is to give an approximate average as a base upon which to work, and such an average is shown in Table Q.

TABLE Q.

Approximate loss of heat in B. t. u. per degree difference of temperature per sq. ft. of surface per hour from floors over cold air spaces:

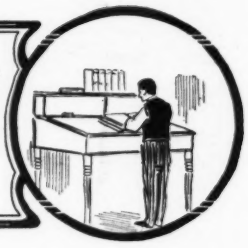
Double-Boarded Floor.	No. Draft.	With Average. Wind.	With Strong Wind.
1½ in thick, open underneath..	.33	.35	.40
Floor double and sheathed on underside	.22	.25	.29
Lathed, and plastered with cement on underside	.18	.20	.24

Two hundred and twenty-four sq. ft. over an average porch exposure, would lose from its surface when room was 70 deg., outside air zero, from 5,488 B. t. u. to 3,136 B. t. u. per hour, loss calculated as follows: .35×70×224=5,488, or .20×70×224=3,136 B. t. u., according to conditions.

(To be continued)

BUSINESS MANAGEMENT

NEW METHODS FOR OLD



EDUCATE THE HOUSE-WIFE SANITARIALLY.

Editor "Domestic Engineering":—It seems to me that the average plumber makes a big mistake when he neglects to inform the women in regard to many sanitary matters.

The house-wife is the one who has to put up with all the inconveniences and many times the mistakes of the party who slights the job. Some people say that a woman is not capable of learning such matters. Will any one who has ever had any experience in the matter comment on this?

For my part I would state that I have at various times shed this light among the gentler sex, and I have always found that they were fully as intelligent and a whole lot more painstaking than the man of the house. I think that this is a matter that will bear discussion.

Toledo, O. C. K. L.

AN EXAMPLE IN THRIFT.

Editor "Domestic Engineering":—In a recent issue of your paper among some of the articles of the convention reports I saw some remarks on the amount of protection our craft and business has, but what was of the most interest to me was, what the writer said in regard to some of the other trades. He called attention to the fact that the mason and the carpenter seldom make a profit on the material that they handle.

Now I think that if we examine the financial condition of these men as a class all over the country and then compare their condition with that of our own we will find that we are in the soup.

Were I to assign a reason for this I should call it a lesson in thrift. The men in the two other crafts mentioned make (on the average) better investments of their wages. They are also as a class more sober and more reliable men. They have sense enough to save a portion of their money and very few in our craft follow that practice.

Omaha, Neb. L. S. F.

THE MAN WHO "HASN'T GOT TIME."

In our mail to-day there is a letter from which we wish to quote a line or two as follows; "you people are running a blame good paper—blamed good, but I don't get time to read it."

About 1,000 years ago a certain Journeyman King of England divided the day into three equal parts. Eight hours for sleep, eight hours for work, and eight hours for eating and improvement.

Scientists, reformers, cranks and busy-bodies have all at various times taken a fall out of this division of time, but up to date no one has ever improved upon it. It is a cinch that no one is going to put in eight hours a day in eating. Say, then three hours each day for eating. That leaves five hours every day to be accounted for. Say, friend, what are you doing each day with those five hours?

To make a plain, bald statement there is hardly one of us but that he could do nearly double the daily tasks he now does if he only planned the work along some correct system, and then gave each task his whole attention at the proper time.

Hence when our friend says that he "hasn't got time" to read any trade-paper I believe that if he would take the time and by reading the paper find out how to put his affairs into some kind of shape, he would find that he had time to burn and also that in his business he would have dollars where he doesn't get doughnuts at present.

"TOO COMPLICATED."

The other day we received a letter from one of our readers, in which he made the remark that this department was "too complicated," and that the ordinary plumber would not be able to understand many of the matters to which we and others frequently allude.

Some people might reply and say that they were glad that they had found one or two things that the plumber did not know. We, however, do not take that ground at all. We believe that even granting that the criticism is true it would be a mighty good thing to publish items, occasionally, that were too deep for the average reader. If one gets the same line of dope week after week, year in and year out, how in sixty is he going to improve?

"We 'uns" all need problems thrust upon us from time to time, that are beyond the every-day dead-level of ordinary comprehension, to stir our minds to greater things. The mind that does not get such jolts will stand still. Therefore we would advise any of our friends, in the kindest possible manner, that if they think this department is too complicated to wake up and get in the game.

If there chances to be in it anything that you do not understand write us and we will gladly do our best to solve the riddle. You don't get easy problems in every-day life, why then should we make this or any other department into a kindergarten?

NOTES FROM THE PACIFIC COAST.

The American Hydro-Vacuum Cleaner Co., San Francisco, Cal., has been incorporated with a capital stock of $250,000. The incorporators are: V. Vane, H. K. Asher, W. A. Roger, M. L. Cooper and G. W. Morris. San Francisco will be its principal place of business.

A new heating firm has opened for business in South Pasadena, Cal., under the name of Dunn & Barnett. A new building was erected there to house their business.

The contract for the plumbing work in the First National Bank building at Riverside, Cal., was secured by the Hinde Hardware Co., of that place, on its bid of $15,000.

The plumbing work in the new eleven-story building being erected at Sixth and Spring streets, Los Angeles, for the Los Angeles Trust Savings Bank, will be done by Howe Bros., for $23,300.

The Blumve & Jay Co., Los Angeles, has secured the contract for installing the plumbing work in the six-story building being erected there by the J. F. Birkel Music Co. The contract is valued at $$6,310.

Ed. Morrissey, Lander, Wyo., has secured the contract for the installation of plumbing and heating systems in a new $50,000 building at Crookston, Minn., at a consideration of $7,000.

Master Plumbers of Intermountain States in Annual Convention in Salt Lake City

Master plumbers from five intermountain states gathered in annual convention at the Knights of Pythias hall, Salt Lake City, Utah, at 10 o'clock Monday morning, May 30th. This was the thirteenth annual convention of what has been known as the Colorado Association of Master Plumbers, but what in future will be designated as the Intermountain States' Association of Master Plumbers. At the convention Idaho was admitted as a member of the association and the name of the organization was changed. About 100 delegates were in attendance at the opening session.

President Chris Irving, of Denver, called the delegates to order about 10:15 Monday morning. He delivered an address congratulating the association on the progress it was making.

D. C. Seagraves, Rock Springs, Wyo., then presented President Irving with a gavel made from a limb of a tree planted by President Lincoln in front of his house at Springfield, Ill., in 1860, requesting that the gavel be presented to the president of the National Association of Master Plumbers, Walter D. Nolan, Washington, D. C., when that organization meets at Chicago June 28, 29 and 30.

The usual committees were then appointed as follows:

Credentials—F. W. Jones, Salt Lake; John Argurt, Colorado Springs; W. O. Waslun, Denver.

Auditing—F. J. Carthy, Salt Lake; H. B. Ikler, Glenwood Springs; James S. Small, Denver.

Resolutions—H. Green, Salt Lake; N. W. Haas, Colorado Springs; George E. Smith, Denver.

The reports of Peter E. Snow, treasurer, and Charles A. Dehn, secretary, were then submitted. Both showed the organization to be in a flourishing condition, and the reports were adopted unanimously.

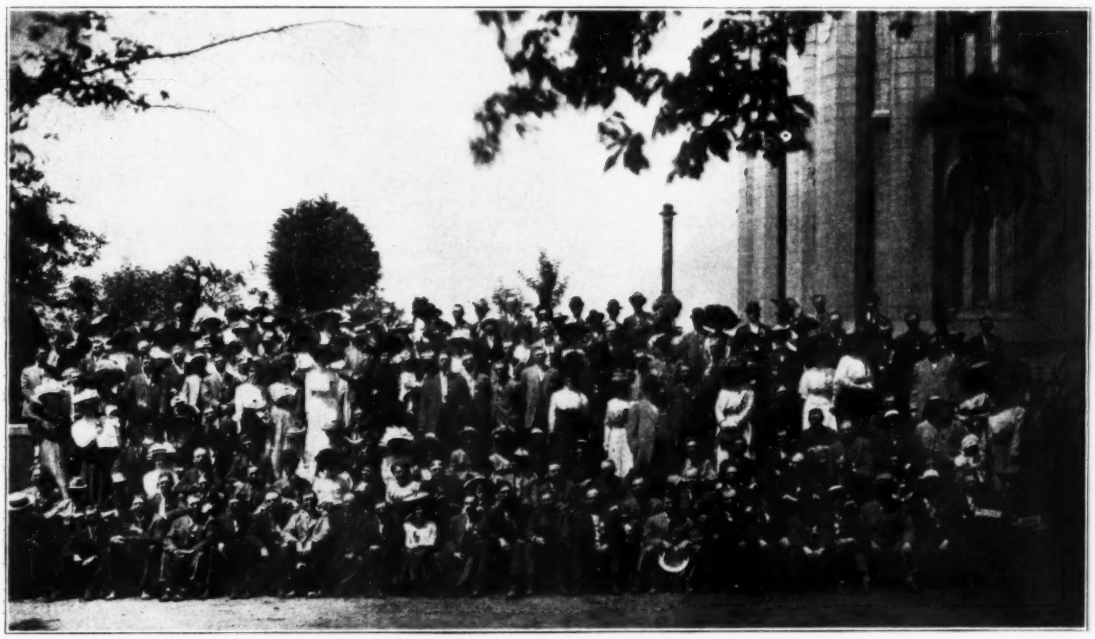
At this time it was agreed that the state of Idaho should be admitted to the association, and after the admittance of the "Gem State" the ame of the association was changed, as stated.

At the afternoon session the various committees submitted their reports and addresses were made by members of the association on subjects connected with the business of the convention.

After the adjournment of the afternoon session a meeting of the executive committee was held at the Semloh hotel, at which several important matters were discussed.

In the evening the delegates and their wives and families attended the bicycle races at the Salt Palace.

At the Tuesday morning session the convention went on record by a unanimous vote as being against outside contractors coming into any city and taking contracts from the local firms. This came in the form of a resolution reported by the committee on resolutions and it was maintained that this competition was not in the interests of the trade or of the city; that any local contractor could perform the work just as well as could an outsider.



"In the Shadow of the Temple."
An Interesting Group of "Intermountain" Plumbers in Convention at Salt Lake City.

By a rising vote, thanks were extended to the Salt Lake local for its hospitality and cordial reception; to the press, and to Prof. J. J. McClellan and the tabernacle officials.

Officers for the ensuing year were elected as follows: Chris Irving, Denver, president; Henry Green, Salt Lake, vice-president; Peter E. Snow, Denver, treasurer; Charles A. Dehn, Denver, secretary; E. F. O'Conner, Denver, sergeant-at-arms.

Delegates to the national convention at Chicago were selected as follows: President, Chris Irving, Will Rees, Salt Lake; John Parry, Denver; W. W. Haas, Colorado Springs; W. T. Crean, Denver.

Denver was chosen as the meeting place for the next annual convention, after which the meeting was adjourned sine die.

Entertainment Features.

At the close of the convention the delegates and their wives and families visited the tabernacle, where a special organ recital was given, with Prof. McClellan at the organ.

After the recital the delegates were photographed "in the shadow of the temple" in the tabernacle grounds. Of course, the delegates were given the usual demonstration of the acoustic facilities of the big building and the pin was dropped for their edification.

In the afternoon the party adjourned to Salt Air, where the plumbers and their ladies remained until late in the evening.

About 6:30 o'clock P. W. Gorman, of Salt Lake, who acted as toastmaster, and performed the duties of the office very efficiently, called the party to order and a splendid luncheon was served. After the luncheon an address of welcome was delivered by H. Green, of Salt Lake City, and the response was made by C. Irving, president of the association.

Mrs. Corrine H. Hammer thereupon rendered two vocal solos, "Beautiful Garden of Roses" and "Annie Laurie."

The following toasts were responded to: "Idaho," A. R. Highson, Pocatello; "Colorado," Thomas F. Dolan, past president Denver local; "The Master Plumbers," A. P. Gumlick, Denver; "Local Associations," President N. W. Haas, Colorado Springs; "The Ladies," W. F. Green, past-president of the association, Denver; "The Supply Men," William Bowen, Salt Lake City; "The Relation between the National Association of Master Plumbers and the American Society of Inspectors of Plumbing and Sanitary Engineers," by John W. Farrell, plumbing inspector of Salt Lake City.

Mr. Farrell said: "It is indeed a pleasure for me to be in the presence of this representative body of master plumbers and their ladies from the different states and territories of this far-western country. I have never made an extemporaneous speech in my life, nor a prepared speech before this time. I do not know how and I trust that this will be my first and last offense. The subject assigned me is of too great importance for adequate treatment at a banquet and in the hands of one unaccustomed to public speaking.

"The objects of both associations in this relationship to each other can not be but the same. These admit only of the clearest definition and fortunately for the success of this brief effort of mine they can be stated in language which is not capable of misinterpretation and their praiseworthiness is without question. These objects can be summed up as follows:

"To strive by all legitimate effort to encourage the installation of the best materials and fixtures and to obtain the highest quality of workmanship.

"To bring about throughout the entire country a public recognition of the essentials of sanitation.

"To secure the passage of state and national legislation, which insures public service by men of recognized professional standing in the ranks of master plumbers and plumbing inspectors.

"To place in sanitary position of trust, men whose energies will be devoted to the enforcement of laws so made.

"No other associations of men have any worthier objects than these as part and parcel of their every-day lifework and I am proud to be recognized and counted as a member of the American Society of Inspectors of Plumbing and Sanitary Engineers, and therefore also a co-operator with the national and state associations of master plumbers.

"Now, ladies and gentlemen, I wish to thank you for your kind attention and to say that I hope your stay in our beautiful little city has been a pleasant one and that we will see you all here again, early and often."

At the conclusion of the banquet President Irving appointed the following as members of the executive committee for the ensuing year: William Haas, Colorado Springs; Dennis Burk, Pueblo; C. J. Higson, Salt Lake; Jett E. Nash, Cheyenne; A. R. Higson, Pocatello; J. Hasselden, Albuquerque, N. M.; George E. Smith, Denver, and Archie Davis, Denver.

GOVERNMENT CONTRACTS TO BE AWARDED.

Supervising Architect James Knox Taylor, Treasury Department, Washington, D. C., will receive sealed proposals as follows:

Until 3 p. m., June 20, 1910, for the construction, including plumbing, gas-piping, heating and electric wiring, of the U. S. post-office at Columbus, Ind.

Until 3 p. m., June 23, 1910, for the construction, including plumbing, heating, gas-piping and electric wiring of the U. S. post-office at Clinton, Mo.

Until 3 p. m., June 24, 1910, for the construction, including plumbing, heating, gas-piping and electric wiring of the U. S. post-office at Aiken, S. C.

Until 3 p. m., June 27, 1910, for the construction, including plumbing of the U. S. post-office at Minneapolis, Minn.

Until 3 p. m., June 28, 1910, for the construction, including plumbing, heating, gas-piping and electric wiring of the U. S. post-office at Plattsmouth, Neb.

Until 3 p. m., June 29, 1910, for the construction, including plumbing, heating, gas-piping and electric wiring of the U. S. post-office at Chambersburg, Pa.

Until 3 p. m., June 30, 1910, for the construction, including plumbing, heating, gas-piping and electric wiring of the U. S. post-office at Greenville, Ill.

Until 3 p. m., July 1, 1910, for the construction, including plumbing, heating, gas-piping and electric wiring of the U. S. post-office at Jeffersonville, Ind.

Until 3 p. m. July 5, 1910, for the construction, including plumbing, heating, gas-piping and electric wiring of the U. S. post-office at Troy, Ala.

Until 3 p. m., July 7, 1910, for the construction, including plumbing, heating, gas-piping and electric wiring of the U. S. post-office at Beloit, Wis.

Until 3 p. m., July 11, 1910, for the construction, including plumbing, heating, gas-piping and electric wiring of the U. S. post-office at Columbus, Neb.

Until 3 p. m., July 12, 1910, for the construction, including plumbing, heating, gas-piping and electric wiring of the U. S. Marine hospital at San Francisco, Cal.

All proposals should be in accord with drawings and specifications, copies of which can be obtained from the custodians of the above postoffices or from the office of the Supervising Architect at Washington, D. C.

OBITUARY.

William H. Sleeper, who has been engaged in the plumbing business since the Civil war, at 1040 Broadway, Brooklyn, N. Y., died at his home in that city on Friday evening, May 20th. He was a veteran of the Civil war and participated in many battles, being honorably mentioned by his commanding officers. He was born at Epping, N. H., in 1844, and is survived by one son, Wm. H. Sleeper, Jr., and one daughter.

The Second Annual Convention of the National District Heating Association, Held at Toledo, O., June 1-3, 1910

Morning Session—June 1.

A most profitable gathering of the above association took place in the Boody House, Toledo, O., and the registration of attendance nearly reached the century mark. At the opening session, A. E. Rogers, president of the association, announced with regret that D. L. Gaskill, Greenville, O., had been suddenly called away owing to the death of his father. The secretarial duties were therefore undertaken by J. H. Whiteley, Mr. Gaskill's associate in business. Many members expressed their sense of loss by the secretary's absence as he has made himself well-known by his efforts on behalf of the association.

Pres. A. C. Rogers, Toledo, O., then read the presidential address of welcome. He called attention to the high status attained by the modern engineer on whose word thousands of dollars are invested daily. The increasing population of the United States demanded a consideration of all its natural resources and their conservation. We have before us a constantly-recurring problem of the retrenchment of waste. Conservatism is the keynote of all beneficial industrial development.

It is a noteworthy fact, said Mr. Rogers, that the highest peaks of development in science, business and society have been attained in the temperate zone. The climatic conditions make imperative the adequate and economical provision of warmth. The centralization of heat-distribution meets these requirements and is therefore an important factor in our national progress. He welcomed the members to Toledo and offered his services to make their visit enjoyable and profitable.

Hon. Brand Whitlock, mayor of Toledo, then extended to the convention an address of welcome, which followed strictly along the lines laid down for all mayoral addresses. It referred to the ancients and used Rome as an example of heating pioneerage. It is doubtless this constant reference to the eternal city in mayoral speeches that made "Rome howl." The mayor laid emphasis on the important position of heating engineers and their assumed responsibilities to the public. The working out of central-distribution problems to a satisfactory conclusion do much to retain and preserve the individual rights that have been won in the past. The object of the association should be social service rightly rendered.

D. J. Hard, Cleveland, O., in responding to the city's welcome, stated that Toledo was the godfather of the association as in the very room then occupied by the association, the National District Heating Association was given form and function. He was pleased to record that Toledo had no reason to be ashamed of its offspring and the city was no stranger to the commodities in which the association's members deal, for there are three central-heating stations within the city limits. One of these is probably the largest in the country. The first central-heating plant was installed about 25 years ago and since then millions of dollars have been invested in similar plants as a result of the specializing tendency of the age.

Central-heating problems are receiving daily in increasing measure the incorporated thought and attention of heating engineers. Over 400 plants of central-heat distribution are in existence and it is to be expected that the growth of the industry will be more rapid as its advantages become known to the public. Mr. Hard stated that Cleveland strongly encouraged the centralization of heat-distribution. The association is bearing its full share of responsibility in conserving the national fuel resources and is aiding the solution of the problem of smoke-elimination. The object of this annual gathering is to enable the members to learn and grow in knowledge of heating matters, collecting and unifying all data to that end.

The report of D. L. Gaskill, the secretary of the association, was then read. The statement of receipts and disbursements showed a balance in hand of $150. A detailed account of the work undertaken in the getting out of the yearly proceedings and the souvenir program was then given. The secretary desired to thank A. C. Rogers and L. B. Tyler for their splendid co-operation in this labor.

What the Toledo Press Thought of It.

The association commenced with a membership of 33 active members and now had a membership of 59. The active members are greatly in excess of the associates and he urged the delegates to make special efforts to increase the associate membership. Mr. Gaskill recommended a re-classification of membership and also the provision of a salary to the secretary as soon as the funds of the association permits.

The report was adopted and its suggestions referred to the careful consideration of the executive committee.

Pres. A. C. Rogers detailed the formative stages of the association and requested suggestions as to the best meeting-date. In the discussion that followed, the opinions presented favored the holding of the convention im-

mediately before or after the date of the annual gathering of the National Electric-Light Association.

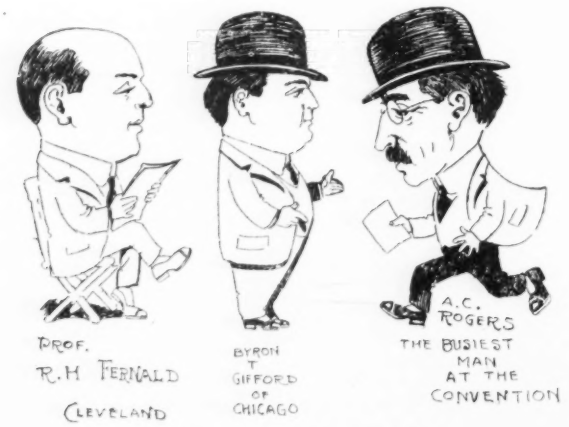
President Rogers then announced the extension of courtesy by the Toledo Railway & Light Co. of free car transportation to all badge-bearers. He said that though the assocation had received cordial and sincere invitations for affiliation with other established organizations, such as the National Electric Light Association and the National Association of Heating & Ventilating Engineers, it was deemed best for the industry to preserve their individuality of organization. Though four states—Indiana, Illinois, Ohio, Pennsylvania—represented the nucleus of the membership, the roll of the association contained members from 23 states.

Afternoon Session—June 1.

President Rogers opened the session by calling on W. A. Wolls, Columbus, O., for his paper on

Description of a Modern Hot-Water Heating Station.

The paper gave a detailed description of the power station of the Columbus Railway & Light Co., from which hot-water heating service is furnished to an extensive residence-section. A schedule of temperature-service for still weather was presented in table form, ranging from 106 deg. F. with the thermometer reading 50 deg. F. above zero



Some Sketches from "The Toledo Times."

to 226 deg. F. with a thermometer reading of 30 deg. F. below zero. With a falling outside temperature and the wind at 12 miles per hour, 5 deg. are added to this schedule and with the wind of 18-mile hourly velocity and falling temperature, 10 deg. are added.

The circulating pumps are operated at 40 to 50-lb. pressures. Records of an average-day's operation were shown and the installation-methods of heating-supply mains were given. Service-lines are installed at cost and heating service furnished at the rate of 15 cents per sq. ft. of radiating surface per year by contract. The first payment of 5 per cent of the year-rate is payable Oct. 10th, 15 per cent Nov. 10th, 20 per cent Dec. 10th, Jan. 10th and Feb. 10th, 15 per cent March 10th and 5 per cent on April 10th. Heat is furnished without extra charge at all other times during the year when the outside temperature is below 70 deg. F. The company requires that customers shall instal temperature-controlling thermostats. These have proved advantageous to both customers and company.

An interesting discussion followed, taken part in freely by the delegates. Discussions of varying length and interest also took place after the papers and addresses following. Special votes of thanks were accorded to all those who contributed to the program. Further reference to discussions or votes of thanks will be omitted throughout this synoptical report unless it is found necessary to mention some subject discussed in order to emphasize the paper's view-point.

Central-Station Steam-Heating in Detroit.

A. D. Spencer, Detroit, Mich., contributed a 32-page paper, illustrating and describing the two central-station heating plants in Detroit. These are owned and operated by the Murphy Heating Co. and the Central Heating Co. The operation of these companies is such that their territories do not overlap.

The Murphy Heating Co. operates a Paul vacuum system in connection with a number of other activities—an electric-power plant, a cold-storage plant, an ice-plant and a central-station brine-circulating system. The company has 320 customers with 380,000 sq. ft. of radiation. The line-pressure is two pounds, with an 18-in. vacuum on the return. Steam is sold at 58 cents per 1,000 lb. for the first 25,000 lb., 55 cents for the next 75,000 lb., and the excess at 53 cents. A discount of 5 per cent is allowed.

The Central Heating Co. operates two practically separate plants and systems—a live-steam power and heating system in the business district and an exhaust-steam heating system in a residence-district. The company is operated in connection with the Edison Illuminating Co., to which it is a valuable auxiliary when competing with isolated plants.

Mr. Spencer gave as the reason for the choice of steam instead of hot water—less investment required: steam capable of more general service (for cooking, laundries and power): the adaptation of steam for hot-water service by the use of a "transformer" and for hot-air systems by use of indirect radiation; the ability to meter steam, offering economical use to customers.

All services are metered, the meter being inspected every six days. The service costs on the new rate 60 cents per M-lb. to 45 cents according to amount used with a minimum monthly charge of 5,000 lb. These rates offer the user a 30-per cent saving of the cost of operating an isolated plant. The conclusions drawn by the author were that a live-steam heating system can compete with private heating in high-class residence districts, if considerable business can be obtained in a compact district, but that it should not be undertaken in a business-district except in connection with an electric-supply business. The discussion brought out interesting examples of other practices in care of meters, their inspection and repairs, also as to the advantages secured in buying coal on the B. t. u. basis.

Morning Session—June 2.

The session was opened by President Rogers introducing W. W. Brand, M. D., Health Officer, Toledo, O., who addressed the convention on

Humidity: Its Necessity and Benefits.

In America two causes are operative in rendering it difficult to protect the health of the public—ignorance of basic and established sanitary truths and an ingrown sense of individual freedom which obscures the sight as to the rights and privileges of others.

The individual is willing to be benefited but must not be inconvenienced by the benefiting of others. The spread of accurate knowledge and application of "Golden Rule" are to be advocated. Such a course will tend to do away with the public apathy, which at present is never disturbed save by epidemic, plague or public disaster. The strenuous remedies adopted at such times would not be necessary under a continuous administration of protective

measures. The public should be taught to take the same interest in the protection of its health as it does that of its wealth or honor.

Heating engineers, by their sanitary profession, must shoulder their responsibilities, laboring as they do to establish conditions favorable to health.

It is surprising how little attention has been given by architects and engineers to humidity—the state or quality of being moist. School-houses, office buildings and theaters as a rule make no provision for the maintenance of normal humidity. The air within is dry and hot as that of the desert. The relation of temperature and humidity is intimate.

The amount of moisture in a building is governed by temperature, nature of the evaporating surface, by rate of humidity dissipation. The difference between absolute and relative humidity must be clearly understood.

The fact that moisture liberates heat during condensation is an important one in the retardation of cooling and can be put to economical use in the heating of buildings.

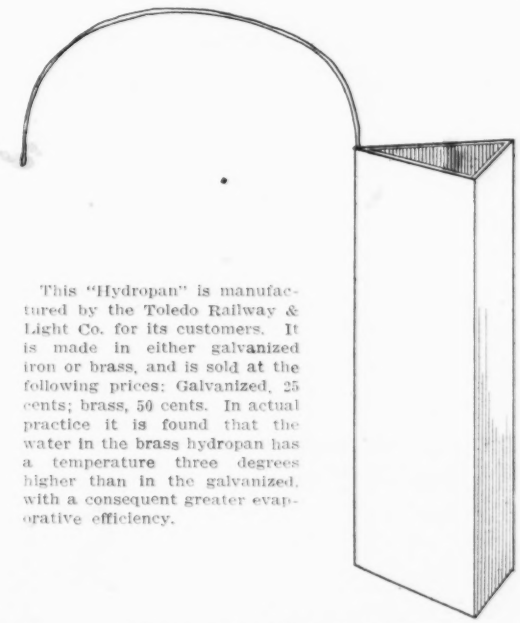
The temperature of evaporating surface determines velocity with which the vapor molecules escape from that surface. Many humidifiers have been devised to provide humidity, that of Mr. Rogers, the president of the association, being especially commendable, conforming as it does to laws governing evaporation. The writer advised the maintenance of a humidity of from 50 to 55 per cent.

Air heated to 70 deg. F. without vapor, is largely responsible for catarrhal and kindred diseases. It affects the mucous membranes of nose and mouth and the respiratory tract.

A notable case of a large building, equipped with provision for humidity, is that of the American Telephone Co., Boston. A 50-per cent humidity is maintained throughout the building. For production of this condition, 675 gal. of water are given to the air in the form of steam, or about one-and-a-half barrels per hour. As a result, a three-per-cent saving is effected in the heating of the building.

With a relative humidity of 50 per cent, there will be fewer cases of pneumonia, catarrh, colds and adenoidal troubles in our schools and the efficiency of the students will be correspondingly increased.

Replying to various questions, submitted to him at the close of the address, Mr. Brand said that the benefits ascribed to the dry climates of Colorado, New Mexico, etc., in the treatment of tubercular and kindred diseases, did not arise from the dryness of the air but were the result of greater uniformity of temperature and atmospheric condition. He advised against the sending of people suffering from advanced stages of the disease to such places as being useless, expensive and entailing mental discomfort to the sufferer.



This "Hydropan" is manufactured by the Toledo Railway & Light Co. for its customers. It is made in either galvanized iron or brass, and is sold at the following prices: Galvanized, 25 cents; brass, 50 cents. In actual practice it is found that the water in the brass hydropan has a temperature three degrees higher than in the galvanized, with a consequent greater evaporative efficiency.

The Rogers Humidifier or Hydropan.

A Good-Looking Group of World-Heaters.
Count Four from the Right and You Will Find Mr. Wright, the New President.

Central-Station Heating.

"Central-Station Heating" was the subject of F. H. Stevens, Chicago. The author pointed out that the failures of some of the early installations of central-heating plants was due to ignorance of proper methods and lack of knowledge of efficiency and durability of materials used for insulating the underground distributing mains. Modern methods of construction, operation and management have made the business of district-heating a profitable one. He advanced figures and data to prove that opposition of consulting engineers and engine manufacturers to this form of heat-distribution was without legitimate foundation. The paper was brief but induced a varied discussion. An interesting point in this was the statement of radiator tests made by John H. Allen, showing that the aluminum paint at present used on radiators was the least efficient for radiative purpose. White enamel was cited as the best covering procurable.

A resolution was then offered by Geo. W. Wright, Baltimore, Md., to the effect that a committee of three should be appointed to revise the constitution and by-laws of the association not later than April 1, 1911. This was carried.

F. V. Clark, New York City, tendered a resolution to express the association's condolence with Secretary Gaskill in his bereavement. The resolution was indorsed and Mr. Clark appointed as committee to draw up suitable letter for the purpose.

R. E. Woolley, Schenectady, N. Y., was then requested by President Rogers to give a description of the flow-meters of the General Electric Co. This apparatus was on the president's table and Mr. Woolley used it as a demonstrative base for his remarks. These are embodied in the illustrated description of the convention-exhibits concluding this report.

Afternoon Session—June 2.

The session opened with the ratification of memberships approved by the executive committee during the year. The following commitees were then appointed:

Committee on Constitution and Revision—D. L. Gaskill, Greenville, O.; Geo. W. Wright, Balimore, Md.; Grant Miller, Toledo, O.

Committee on Convention—Time and Place—R. D. De Wolf, Rochester, N. Y.; A. D. Spencer, Detroit, Mich.; W. K. Martin, Crawfordsville, Ind.

Committee on Nomination—H. E. Powell, Springfield, Ill.; Geo. W. Wright, Baltimore, Md.; D. D. Hayward, Sedalia, Mo.; E. J. Kiefer, Easton, Pa.; Geo. D. Higgins, Detroit, Mich.

Insulation.

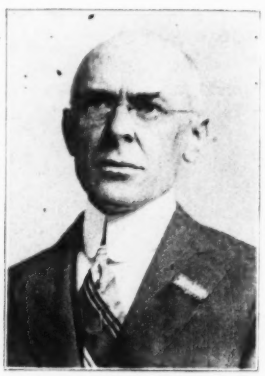
W. G. Richards, Toledo, O., delivered a paper on "Insulation." He stated that fundamentally we regard confined air (dead air) as our most practical insulating element and the division of the air into small particles as the most efficient form. To keep the air in perfect imprisonment by material proof against decay, disintegration and destruction is the aim of the engineer and success in district-heating at the present time is largely due to perfected insulating methods.

The various forms of insulating construction and materials were then cited: (a) tunnel conduits, wood logs, concrete ducts, vitrified tile, and protective wrought-iron and steel pipes; (b) the five principal pipe-coverings—magnesia, asbestos, wool felt, mineral wool, and air-cell.

The high insulating efficiency attained may be gaged when it is considered that the manufacturers of these materials will garantee to protect steam-mains so that steam may be conveyed at 50-lb. pressure for a half-mile with not over 2 deg. drop in temperature.

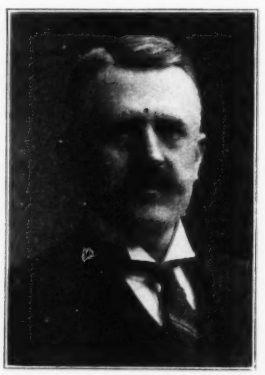
Mr. Richards emphasized the great difference between steam and hot-water in their specific heats and therefore the corresponding differences of insulation care, construction and cost. The various merits and demerits of the insulating materials for specific purposes under varying conditions were carefully considered.

A. C. Rogers.



Geo. W. Wright.

The Old and the New President.



D. L. Gaskill,
Secretary.

The Study of Underground Insulation.

A. H. Staten, Cleveland, O., took "The Study of Underground Insulation" as his theme. It was a concise historical record of the evolution of underground insulatory work. The following stages of this growth appear as follows:

A crude wooden box without insulation.

A crude wooden box with insulation, the latter consisting of sawdust, burlap, newspapers or any material chosen by the whim of the installer.

A wooden box protected in some measure by waterproof paper or waterproofing compound or constructed of creosoted lumber.

A brick trench with a creosoted-plank top, with or without insulation, mineral wool appearing at this time as an insulative material.

A brick trench with a brick arch in place of a creosoted plank.

An expensive concrete tunnel, better forms of built-up wood coverings and tile conduits.

Mr. Staten concluded with the recommendation of a tile conduit, made up in half-sections with independent

supports for the inclosed pipes and inclosing as insulative medium an asbestos-sponge material. This installation possesses the advantage of an absolutely impermeable exterior covering and an interior insulating mass, providing no opportunity for air-circulation. At the same time, myriads of minute air-spaces are present, acting as insulators, and the character of the material permits the inclosed pipes to expand and contract freely without detriment to either the conduit exterior or the asbestos-sponge insulator.

A Study in Centralizing the Heat-Supply.

Prof. J. D. Hoffman, Purdue University, LaFayette, Ind., entered upon a discussion of a few theories underlying the centralization of heat-supply. The object of the paper is to endeavor to find out where the B. t. u. developed in careful attention. The paper closed with an extended comparison of the initial costs in a centralized system and private plants. Mr. Hoffman figured in this case that the fuel-cost of heating one square foot of radiation (direct firing) for one 7-month year, with coal at $2.00 per ton is 8.8 cents in a centralized plant.

Decentralized Plants.

R. D. De Wolf, Rochester, N. Y., attracted considerable attention by his treatment of the above subject. He maintained that in central heat-distribution, in combination with electric light-and-power plants, attention should be directed not only to the thermal efficiency of the engines but to the thermal efficiency of the whole system. The result will be the dispensing with the refinements of steam-engine practice and the reduction of the power-

Model of the Anderson Steam Trap on the Left. The Detroit Meter in the Center. The "Sylphon Regitherm" on the Right. The Central Station Steam Co's. Specialty in the Front.

the plant actually go and what effect they produce by the change. The future development of central-heating-equipments is assured as a result of the specialization in economics at the present time. The chief advantage in centralization is in the economy of the exhaust-steam and the stack-gases.

Professor Hoffman next considered the amount of heat in exhaust-steam, compared with the amount in saturated-steam at the pressure of the exhaust. He stated that the number of B. t. u. exhausted with the steam in any case is—total heat in the steam at the admission, minus the heat radiated from the cylinder, minus the heat absorbed in actual work in the cylinder. Applications were made to different types of engines and different conditions of steam. A concise treatment of a typical plant and amount of radiation supplied by the exhaust steam and the boiler horsepower necessary to heat the radiation not supplied by the exhaust steam and the economizer were also given

plant to simple, easily-operated elements, with a consequent reduction in initial cost, fixed charges, operating expense, cost of supplies and repairs, and the degree of skill necessary to handle the plant.

The speaker considered consecutively the mechanical efficiencies of the engine and of the heating system, radiation-losses in engine and heating system and the relative selling values of and demand for a power-unit and a heat-unit.

The purpose of the paper throughout was to show the importance of building up as large an all-year steam-load as possible and the advantages secured to central stations by taking up the exhaust-steam heating business, furnishing the heat to the consumer by means of an interconnected group of heating centers, adjacent plants being tied together with a system of steam mains. Mr. DeWolf advocated the abolition of the flat rate as tending to uneconomical use of the product by the consumer.

Morning Session—June 3.

President Rogers called for the report of the committee on nomination. This report offered two lists of candidates. A ballot on these took place, resulting in the election of the officers for 1911 herewith presented:

President, G. W. Wright, Baltimore, Md.; first vice-president, A. D. Spencer, Detroit, Mich.; second vice-president, Warren Partridge, Springfield, Ill.; third vice-president, W. J. Grambs, Seattle, Wash.; secretary-treasurer, D. L. Gaskill, Greenville, O.; members of executive committee with preceding officers, A. C. Rogers, Toledo, O., and E. J. Kiefer, Easton, Pa.

A ballot was then taken as a result of the decision of the committee on convention-time and place for the purpose of determining whether the next meeting should be held east or west, the eastern boundary of Indiana being the dividing line. The east was chosen by a vote of 29 to 3. The place was left to the decision of the executive committee. Ballots on both reports were made unanimous. Invitations have been received from Pittsburgh, Pa., and Rochester, N. Y., as the next convention-point but many members favor Harrisburg, Pa., as a center of district-heating industries.

G. W. Wright, the new president, was then inaugurated and responded to the call for a speech. He said that, as president, he would know no east nor west, north nor south, and expressed his appreciation of the honor conferred upon him. He called for the support of every member and urged the delegates not to forget the interests of the association in their everyday routine.

A. C. Rogers, the retiring president, gracefully pinned his presidential badge on Mr. Wright and pledged to him the support of the Ohio members.

The Profitable Operation of a Central Station Without the Assistance of Electrical or Other Industries.

Byron T. Gifford, Chicago, set forth the factors involved in the profitable operation of a central station without the assistance of electrical or other industries. He gave a general outline of the requirements of a plant to operate successfully such a plant as a straight fuel-burning proposition and noted its essential features in design, construction and operation.

In the design it is absolutely necessary to provide such arrangements in the heat-generating station as will utilize every possible heat-unit extracted from the coal.

The "Reliable" Vacuum Pump. The "Simplex" Condensation Meter. The Recording Steam Air Flow Meter. The Stationary Flow Meter.

In the construction, the main point to be considered is the installation of the distributing mains, bearing in mind at all times the necessity of using the most efficient and the most desirable pipe-line construction.

The satisfactory operation of the plant demands the provision of perfect service to the consumer at the least possible cost, consistent with paying dividends on the money invested in the property.

A percentage table of average expenses, as recorded in daily practice, was given, comprising the following figures:

Coal, 70 per cent; repairs, 5 per cent; supplies, 3 per cent; office supplies, 2 per cent; labor, 15 per cent; taxes and insurance, 5 per cent.

Mr. Gifford took as a typical case that of a hot-water plant which would handle 300,000 sq. ft. of radiating sur-

face, whose construction cost was $200,000. He showed that this plant would operate on 53 per cent of its gross earnings, or would leave a balance of approximately $24,000, out of which to pay 6 per cent interest on the investment and leave a surplus earning of about $12,000.

In the plant under consideration, the coal was purchased for $1.50 per short ton. Mr. Gifford also said that he did not consider it necessary that a central station heating plant, to be operated as such, would necessarily have to be a hot-water plant. He contended that a steam plant would make an equally favorable showing.

Afternoon Session—June 3.

The last session of the convention was without doubt the most interesting, the papers being listened to with unflagging interest.

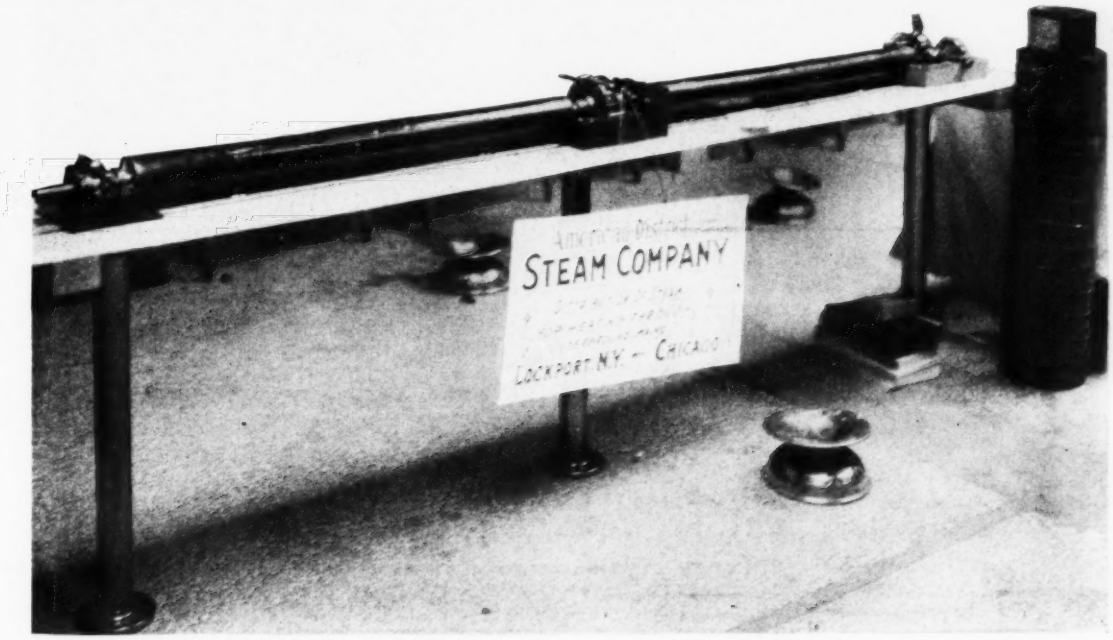
Some of the Factors that Affect the Cost of Generating and Distributing Steam for Heating.

The above paper was followed with careful attention by members of the convention and was dealt with effectively by Charles R. Bishop, Lockport, N. Y. The first factor considered was the thermal value of the fuel, which is the item of greatest cost. The mere price per ton is not an accurate method of determination of ability to purchase cheaply. The purchaser should know its chemical analysis and the number of B. t. u. per pound the coal under consideration contains.

Clean and economical boilers, suited to load conditions, good water, mechanical stokers, and coal and ash-handling apparatuses were discussed in turn. After the factors involved in the generation of steam, the question of the steam's utilization was then given considerable attention. Mr. Bishop stated that transmission-losses are increased or decreased according to: efficiency of installation; outside water and air in motion coming in contact with the distributing-mains; and actual leakage of steam through imperfect condition of the mains or of expansion-joints or due to the blowing of drip-traps. He advises frequent inspection of all points of the system where such transmission-losses are likely to occur, other possible points being leaky air-vents; leaky radiators and piping in the consumer's premises; drips and returns not brought to the consumer's meters; connections made to supply pipes for the use of steam, other than for heating purposes, etc. Emphasis was placed on the necessity of keeping proper records of all costs in every department. The paper was illustrated by form records, charts and tables.

Relative Efficiency and Resistance to Corrosion of Different Types of Radiators.

Herbert Orr, Cleveland, O., under this title undertook the championship of the pressed-steel radiator. He likened the opposition to this new form of radiation to that encountered in previous years by the automatic harvester, the telegraph and the telephone, discussing the statement frequently made—that the pressed radiator is as short-lived as the steel kitchen-boiler—and that steel is specially vulnerable to the corrosive impurities of water in radiating systems. He said that the steel screw-nipples, push nipples and steel-pipe connections used in conjunction with cast-iron radiators would be equally open to attack. As these have not been found subject to corrosion in any marked degree, he maintained it was not logical to condemn the pressed radiator on the same score.



A Model of Underground Pipe Construction and a Sample of Pipe Casing, Exhibited by the American District Steam Co.

Mr. Orr pointed out the reasons for the early failures in pressed-radiator installations, and explained how the causes have been overcome. He contended that the radiating efficiencies of steel and iron differed in such small degree that arguments in favor of cast-iron radiation as against pressed radiation on this ground could only be considered as talking points. Sheet-metal radiation gives advantages of reduced weight, reduced space-occupation, facility of handling, and ability to withstand, without injury the freezing of contained water.

Our Fuel Resources.

Robert H. Fernald, Cleveland, O., is the Engineer in Charge, Technologic Branch, U. S. Geological Survey. He is one of the leading experts on the fuel question

at the present time. He delighted the members of the convention with an illustrated informal talk. He pointed out the possibilities of lignites, peats, and low-grade or high-ash fuels when used in conjunction with a gas-producer. Numerous lantern-slides conveyed to the hearers in graphic manner the large distribution of these fuels, and the methods of fuel-testing conducted by the government to this end were described and the satisfactory results convincingly demonstrated. The lecturer presented also a number of illustrations showing European methods of satisfactory uses of these fuels. Mr. Fernald stated that the centralization of power-development and distribution would offer in the future excellent opportunity for an increased number of central power, lighting and heating stations. Figures of installation and operative costs were also supplied with the description of European plants. The logical conclusion of the facts presented is that the time is not distant when financial interests in power-production will be directed toward the centralization of producer-gas power-plants at the mines and the distributions of the energy developed either by high-voltage long-distance electrical transmission or by pipe-systems for conveying the gas.

Resolution of Condolence.

Whereas, our secretary and treasurer, D. L. Gaskill has been prevented, by the death of his father from attending this convention (in the preparations for which he took so active and laborious a part),

Be it resolved, That this association expresses to Mr. Gaskill its deepest sympathy in his bereavement, and its regret at his inability to take part in this convention.

Resolved, That this expression be made a part of the minutes of this meeting, and that a copy of the same be forwarded to Mr. Gaskill.

F. V. Clark,
Committee.

President Wright appointed the following members on the Publicity Committee: Chas. R. Bishop, Lockport, N. Y.; Byron T. Gifford, Chicago, Ill.; Joseph Graham, New York City; H. de Joannis, Chicago, Ill.; W. W. Macon, New York City; A. S. Armagnac, New York City; W. D. Weaver, New York City; F. R. Lowe, New York City.

The Meter Committee comprises J. F. Lewis, Detroit, Mich.; D. D. Hayward, Sedalia, Mo.; H. E. Powell, Springfield, Ill.; R. D. De Wolf, Rochester, N. Y.; Grant Miller, Toledo, O.

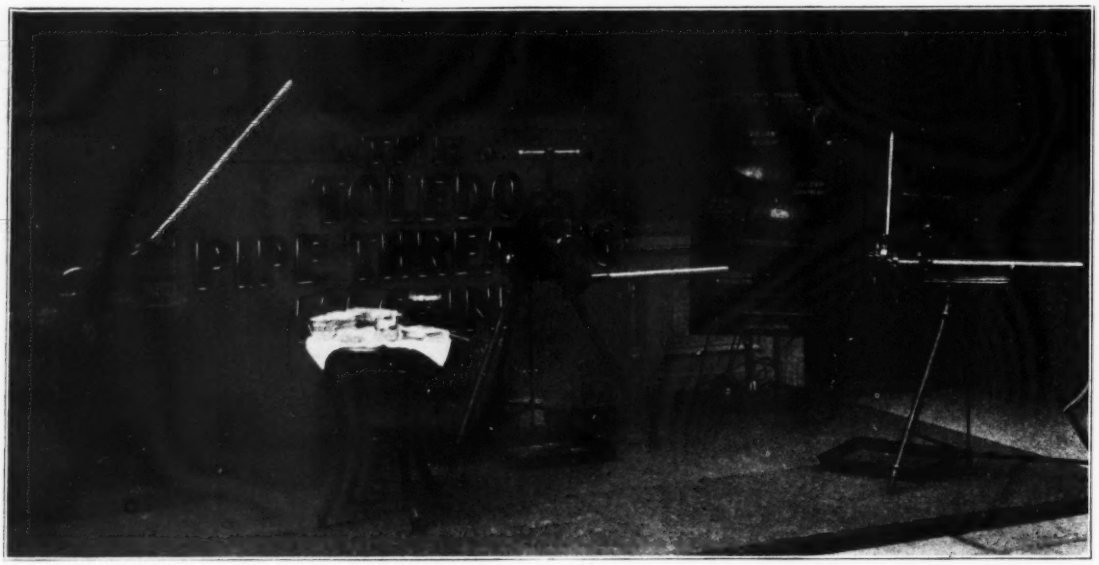
On the committee on Data on Radiation, there were placed W. K. Martin, Crawfordsville, Ind.; G. D. Bly, Toronto, Ont., Canada; E. J. Kiefer, Easton, Pa.

The Committee on Membership and on Program were left to be appointed by the president subsequent to the convention.

The convention then adjourned sine die.

The Exhibits.

Several very interesting exhibits were made in the hotel lobby and these formed as many centers of animated discussion. At the close of the convention, a special vôte of thanks was extended to the exhibitors for their assistance in making the meeting a profitable one.



The Stationary and Moving Exhibits of the Toledo Pipe Threading and Machine Co.

The "Reliable" Hydraulic Vacuum-Pump.

Emmons Collins, masterful in form and argument, represented The Bishop & Babcock Co., Cleveland, O., and exhibited the "Reliable" hydraulic vacuum-heating plant. It is specially worthy of attention by heating engineers, as it is adaptable to any system of steam-heating, producing a vacuum in air-lines or steam-pipes. It is adjustable to any degree of vacuum and is operated effectively by ordinary city water-pressure. Only 5 in. of vacuum are ordinarily required but the pump commands a range up to 20-in. vacuum.

In many cases, the addition of the 'Reliable" pump to a heating plant below heating efficiency has made it thoroughly effective in operation. The installation can be accomplished by repacking valves without disturbance of radiator-systems already installed. The chief advantages claimed for this vacuum-pump are that it effects a saving of from 10 to 25 per cent in fuel; it does away with objectionable water-hammering in the pipes or radiators;

it circulates steam at a low pressure, giving the steam-heating system a temperature-range practically the same as that of a hot-water system. The cost of operating the pump by water-pressure does not exceed $2.00 a season of eight months' duration. The Bishop & Babcock Co. will mail upon request its new catalog, handsomely printed in two colors, and containing specifications, instructions and data concerning its various lines.

"Vacuum On Tap."

Spring-cleaning, second in terror only to Death in the mind of the average male biped, is to be abolished and plumbers are specially invited to participate in the profits of its expulsion. The McCrum Howell Co., New York City, by its exhibit effectively demonstrated the merits of this new field of sanitary effort and commercial profit. The company owns and controls all the most important patents in vacuum-cleaning devices, some 85 in number.

A. B. Marshall, the chief aspirator, and J. F. Billmyre, leading vacuumist, both representing the McCrum Howell Co., scintillated air-cleaning facts. The plumber should investigate these for they are simple and convincing.

Air in motion cleans. The creation of a vacuum puts air in motion. The quicker the move, the greater the clean.

For all branches of suction-cleaning the McCrum Howell Co. provides the requisite types of machine. Portable machines, only 10 lb. in weight, lighten the household labors of man's better half. Stationary machines, or "aspirators," are supplied to insure the perfect dustlessness of business offices, apartment buildings and hotels. The Boody House has had one of these installations for five years and the delegates witnessed its perfect action daily. They were amazed to note the small space occupied by the apparatus. The illustration shows the size of an aspirator similar to the hotel equipment.

The portable machines cost little for operation, not exceeding that of the ordinary outlay for new brooms. The saving in labor and gain in efficiency are very great.

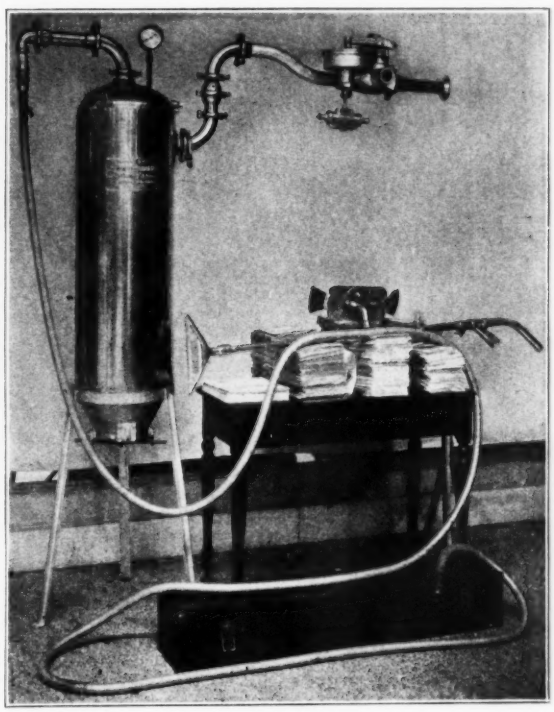
The stationary system can be installed by any plumber or steam-fitter without difficulty.

Tools to clean everything in the house from a mattress to a lace curtain are provided with the machine and control of vacuum is maintained at the nozzle of the flexible hose. The ordinary house carpet-tool is 8-in. wide but hotels and large building equipments have a 36-in. range. Power vacuum-cleaners are very effective as they extract the foul air as well as the dirt and cause an inrush of fresh air. Water-pressure, gas, electricity or gasoline may be used as power. Many customers are waiting for the "vacuum on tap."

The Steam and Air Flow-Meter.

Probably the exhibit provocative of the most questions was that made by R. E. Woolley on behalf of the General Electric Co., Schenectady, N. Y. This consisted of an indicating flow-meter and a recording flow-meter. The meter in its indicating form as will be seen by the illustration is simple of construction, portable and durable. It will indicate the instantaneous rate of flow of steam, air, or any gas at any condition of temperature, pressure or moisture met in commercial practice. The meter consists of an iron-casting, cored out to form a U-tube. This is filled for part of its height with mercury or water, depending on whether steam or air-flow is to be measured. Differences in pressure in the pipe, to which the instrument is connected by nozzle-plug, cause a difference of level in the liquid in the U-tube. A small float, suspended by a silk cord, actuates a pulley over which the cord passes. The pulley in turn moves a small bar-magnet on the end of the shaft next to the dial in proportion to this change in level. An indicating needle, sensitive to another bar-magnet on a separate casing, records the change by virtue of the attraction of the two magnets for each other. The relation of the needle to a graduated scale properly adjusted for pipe-diameter, temperature and pressure will give the true instantaneous rate of flow per sq. in. of pipe cross-section.

The recording flow-meter is even more interesting. It consists of two hollow cups, half-filled with mercury, and joined by a tube at the bottom. This U-tube formation balances on a set of knife-edges as a study of the photograph will show. The pressure on the mercury in one tube causes the mercury to rise in the other and a deflection of the connecting beam actuates the recording pen to trace on the paper chart the amount of mercury-displacement. The paper-feed is effected by clock-power and the rate of flow in pounds per hour may be read at any instant or the average rate calculated for a given time. No change whatever in the main piping system of the station is necessary to install the meter and as none of the steam being measured passes through it, the meter always remains cool. The nozzle-plug illustrated is screwed into the pipe at the point where the flow is to be measured. Two sets of openings in this plug, known as the trailing set and the leading set, the last facing the direction of flow, is the determining factor in accurate measurement. The General Electric Co's. literature furnishes abundant details concerning other phases of the operation of these machines.

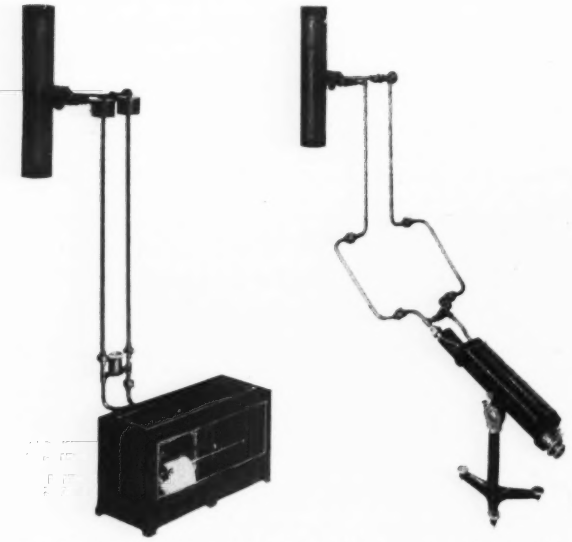


"Vacuum on Tap."
The McCrum-Howell Co. Fills the Gap and Moves the Dirt.

Recalibration can be readily effected by running a water-rate test on the engine and checking the readings by condensing steam against the indication of the instrument. In this manner correction can be found which can be applied to the meter for correction in future readings. This correction will vary with the load.

The "Simplex" Meter.

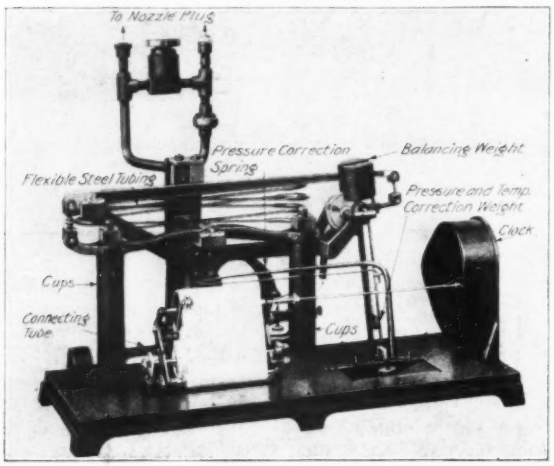
The American District Steam Co., Lockport, N. Y., exhibited a complete line of models of fittings used in underground steam construction; two different types of expansion-joints, i. e., a variator and packed slip-expansion joint; various fittings for making angles in the pipe-line;



Showing the Recording and the Indicating Meters of the General Electric Co. Connected Up.

a "Simplex" condensation-meter; a sample of steam-pipe casing; and a model to scale of the company's method of underground construction.

The "Simplex" condensation-meter was fitted with a glass front, exposing its internal mechanism. It consists of an oscillating bucket divided into two compartments, mounted on a ball-bearing trunnion. The water fills each compartment in turn, tilting it, and the record of con-



Showing the Interesting Details of the Recording Flow Meter.

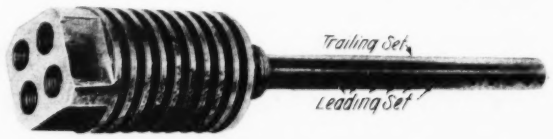
densation-flow is made by a pin on the side of each bucket. A dash-pot takes up the shock of tilt, dash-boards on each side of the bucket impinging on the surface of the water contained in the dash-pots.

A full-sized radiator-valve was also shown, specially designd for atmospheric systems of heating. The steam-pipe casing-exhibit was of kiln-dried white pine, banded with galvanized wire, mortised and tenoned. A model of underground construction showed the installations of a variator, anchor special, street-corner cross, valves and man-holes.

The American District Steam Co. was represented by Chas. R. Bishop, H. C. Kimbrough, E. L. Barnes, J. D. Walsh and W. J. Kline.

The Sylphon-Regitherm.

Frank C. Reeder, on behalf of the Fulton Co., Knoxville, Tenn., talked and exhibited the sylphon-regitherm

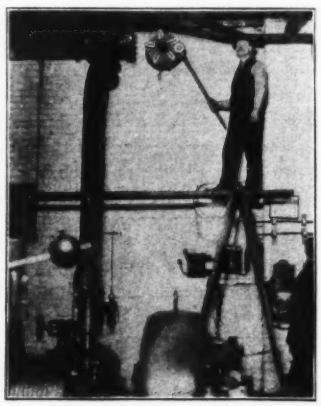


The Nozzle Plug.

and the sylphon heating specialties. Despite its formidable name, it is an inviting apparatus for it controls to perfection the temperature at any point between 60 and 80 deg. It is applicable to steam and hot-water heaters, hot-air furnaces, gas-supply, etc. It easily pays for itself in the saving of labor, time and fuel bills. The Fulton Co. manufactures these devices for the American Radiator Co., which has sole selling control throughout the country. The setting of a pointer to obtain a given temperature without a tedious trip to the basement should appeal to the public the heating zone over and the regitherm is giving satisfaction in thousands of homes.

The "Toledo" Pipe-Threaders.

The Toledo Pipe-Threading Machine Co., Toledo, O., went the limit in exhibit space for the display of the advantages of its pipe-threading devices. The illustration shows the movable arm on the easel at the right, doing work on a pipe by means of an electric drive. A full-size No. 3 "Toledo," geared adjustable threading device was installed and operated to bring conviction to the minds of the conventioners. This threads from 4½ to 8 in. inclusive. The company claims the distinction of marketing the only threading device by means of which one man can positively thread pipe up to and including 12 in. The No. 4 threads from 9 to 12 in.



A Difficult Proposition Made Easy.

The Fremont Yaryan Co., Fremont, O., had opportunity to use a No. 3 "Toledo" to good advantage as illustrated. It was hoisted into position, and the steam-fitter of the plant threaded a 6-in. pipe, projecting only 10 in. through

the wall, the work being done 12 ft. above the floor. The company was represented by W. C. Longenecker, Frank Collins, C. A. Popp and S. S. Thornberry.

The Wainwright Water-Heater.

D. K. Dean distributed the literature of the Alberger Condenser Co., New York City. It dealt with the Alberger centrifugal pumps, the Wainwright water-heaters and the Wainwright expansion-joints. The Wainwright water-heaters are designed to transfer the heat of the exhaust steam to the water, thus giving a hot-water service without additional cost for fuel. It is specially applicable to hotels, apartment houses, offices and public buildings. The heat-transmission is carried on through walls of straight tubes of seamless drawn pure copper, which has a very high conductivity. The Wainwright expansion-joints are compact, being no larger than the diameter of the flanges of the pipe in which they are inserted and being free from leakage, can be covered readily with a non-conductive material to prevent the radiation of heat.

The Detroit Condensation Meter.

J. T. Bradley, representing the Central Station Steam Co., Detroit, Mich., operated two shows, one upstairs and one in the hotel lobby, both for the purpose of showing the effectual operation of the Detroit condensation meter. The upstairs exhibit consisted of a meter in the bathtub, working smoothly and showing how the wheels went round. The exhibit in the lobby comprised a condensation-meter, a "Detroit" transformer or water-heater, a "Style F" or floating type of expansion-joint, and a "Style A" expansion-joint with side anchorage.

The meter measures condensation on all steam-lines used for heating buildings, factories, etc. It also measures volatile oil as freely as water. Its principle of action is quite simple, the meter consisting of scroll-type sections, revolving in the manner of a water wheel, and registering condensation-flow by gear from the front hub.

The transformer is designed to take the place of a hot-water boiler so that the central-station supplying steam can couple it on to a hot-water installation in private residences, transmitting the heat in the steam to the water and doing away with the necessity of changing over the system. The manifolds are build in from 2 to 12 sections and are very flexible. There is also provided a header for heating water for domestic purposes. The "Style F" expansion-joint is designed to be on a line-anchor, its anchorage being obtained from the base of the line-anchor which is embodied in concrete. The 'Style A" expansion-joint is anchored by an iron saddle built into the brickwork which encloses it. There are two service-connections taken from the top of the joint, one on either side. This joint will take care of the expansion on a 100-ft. line, being the total of the traverse of 2½ in. on both diaphragms, these being made of spun copper.

CRESCENT ANCHOR
CRESCENT CASING LAID IN CONCRETE
CRESCENT JOINT
AMERICAN FOUNDRY & CONSTRUCTION CO. PITTSBURG —PA—
HIGH PRESSURE STEAM WORK
HYDRAULIC PIPING FOR ROLLING MILLS
BLAST FURNACE WORK, ELECTRIC LIGHT & STREET RAILWAY
LICENSED AGENTS IN THE CONSTRUCTION OF THE CRESCENT SYSTEMS OF CENTRAL HEATING PLANTS

"Crescent" Signs of the Times and Exhibits.

The "Crescent" Lines.

The American Foundry & Construction Co., Pittsburg, Pa., made a comprehensive exhibit of imposing appearance and was represented by its general manager, W. L. Klingelhofer, its secretary and treasurer, J. O. Klingelhofer, and E. B. Tyler, Capt. Geo. A. Hurd and Oliver J. Heller. The exhibit comprised a "Crescent" anchor and a "Crescent" double expansion-joint connected to pipe; a length of pipe covered with "Crescent" casing, laid in concrete, and with "Crescent" ball-bearing pipe-supports, sustaining it; this is used in construction of underground heating-mains, either one-pipe or two-pipe, gravity or vacuum and also for hot-water systems.

There were also shown a bracket for tunnel-construction work; traps for draining lines, taking condensation from high-pressure lines and discharging it into low-pressure lines; a 90-deg. pipe-bend, with a 45-deg. offset-bend, one end fitted with a Vanstone joint and the other with a poen joint.

In the installation of a "Crescent" heating system for street-mains, a ditch is prepared, in the bottom of which is laid an ordinary 4-in. tile-drain, embedded in cinders to 4 in. above the tile. Upon this is placed a 6-in. bed of concrete, in proportion of 3 to 1. The pipe supports are then placed in position 12 ft. apart. The distance between anchors and expansion-joints is 150 ft. The pipes are then laid and tested to 100-lb pressure. These are incased in "Crescent" casing, using a ¾-in. dead-air space between the pipe and a sheet-tin covering upon which is a ¼-in. layer of asbestos superimposed by 1¼-in. of wool-felt, covered by a tar paper and the whole surrounded and covered by reinforced concrete to a depth of from 4 to 6 in. At each man-hole, a collar is placed on the pipe, provided with a long ferrule extending into the casing and sealing the air around the pipe. The casing is coated with a coating of pitch, cut with coal-oil to keep it damp-proof. In especially wet cases, a water-proof compound is mixed with the concrete casing. The man-holes are provided in this construction every 300 ft. in order to get at the expansion joints which are furnished with "Crescent" line-traps, the drainage being carried to the sewer or return. These expansion joints also serve as steam-separators. There were also exhibited a cross and anchor fitting and a sample of a semi-steel, high pressure, 250-lb. working-pressure gate-valve. A 4-in. packless valve used for underground steam or hot-water heating work; a low-pressure vacuum-trap for heating coils on indirect-radiation systems; a vacuum-valve for radiator-use provided with by-pass to allow for cleaning without breaking the system; these also served as bases for calling attention to the merits of the "Crescent" lines. Self-grinding blow-out valves were shown constructed for a 2500-lb. pressure and for which was claimed six times the durability of the ordinary valve of this type. A sample of hydraulic pipe made for working pressures up to 10,000-lb. with valve and fitting was another interesting feature.

Steam Pipe Casings.

H. B. Smith represented The Michigan Pipe Co., Bay City, Mich., and distributed literature concerning the company's steam-pipe casings. These are in stave-form, 12 ft. in length, of Michigan pipe and tamarack. The banding of the casing is effected with 3/16-in. double galvanized steel wire. The banding and the exterior of the pipe are protected with asphaltum-cement.

The Anderson Steam-Trap.

The V. D. Anderson Co., Cleveland, O., represented by Joseph H. Meyers, had on exhibition a model of its well-known steam trap. Among its features of merit may be mentioned the facility afforded by the removal of the valve and the valve-seat without breaking a steam-joint or pipe-connection. The valve is always locked with at least three inches of water, making the escape of steam impossible.

Entertainment.

On the program of entertainment, provision had been made for an automobile ride and a boating trip for the ladies but the weather man turned the Toledo sky into water and sky and earth mixed with pleasure-destroying results. All hands and the cook, however, were in attendance at the theater party, provided by the Toledo hosts. The stirring melodrama, "The Two Orphans," inducing a copious hot-water eye-service at tragic moments and the villain being hissed for his uninsulated underground distribution of villainies.

A number of delegates accepted the invitation of the Toledo Railway & Light Co. to visit the Detroit Ave. central-heating station, probably the largest installation in the country.

On Friday night, the Toledo branch of the American Institute of Electric Engineers billed a lecture on Automatic Block-Signaling for Electric Railways," by J. H. Borden, Washington, D. C. To this lecture, the district-heaters were most cordially invited.

You Can Get This Group Photograph.

At noon on Friday "Domestic Engineering" secured the excellent group-photograph shown. Many members have expressed their desire for a copy. For their information we would state that the photograph is on aristo-platino paper, 10x12 in., mounted on a 14x17 in. mount, and it can be secured for $1.00, postage paid to any address, from The Van Loo Studio, Madison Ave. and 14th St., Toledo, O. Order one today while the weather's fine. It will be a souvenir in years to come of a most enjoyable meeting and of the early days of an organization destined to play an important part in national heating.

The New Members.

Since May 29, the association has added the following names to its roll of membership:

The General Electric Co., Schenectady, N. Y. W. H. Pearce, Chicago. Positive Differential System Co., New York City. H. W. Johns-Manville Co., New York City. A. P. Seltzer, Cleveland, O. Cuyahoga Light Co., Cleveland, O. E. C. Johnston, Columbus, O. Michigan Pipe Co., Bay City, Mich. Springfield Light & Heat Co., Springfield, Ill. T. M. Noecker, Edison Electric Illuminating Co., Boston, Mass.

REGISTRATION OF ATTENDANCE.

ILLINOIS.

Chicago.—American District Steam Co., E. L. Barnes, Hal C. Kimbrough. American Foundry & Construction Co., Capt. Geo. A. Hurd. American Radiator Co., L. C. Soule. Central Station Eng. Co., Byron T. Gifford. "Domestic Engineering," Harry de Joannis. W. H. Schott Co., W. H. Schott. Evans, Almirall & Co., F. H. Stevens.

Peoria.—Peoria Gas & Electric Co., H. R. Witherell.

Quincy.—Quincy Gas, Electric & Lighting Co., E. G. Calvert.

Rockford.—Rockford Electric Co., E. W. Osborn.

Springfield.—Springfield Light, Heat, & Power Co., H. E. Powell.

INDIANA.

Crawfordsville.—Crawfordsville Htg. Co., W. K. Martin.

MARYLAND.

Baltimore.—Baltimore Refrigerator & Heating Co., Geo. W. Wright.

MASSACHUSETTS.

Cambridge.—Cambridge Electric Light Co., D. E. Badger.

MICHIGAN.

Adrian.—Citizens Light & Power Co., H. A. Fee.

Bay City.—Michigan Pipe Co., H. B. Smith.

Detroit.—V. D. Anderson Co., Jos. H. Meyers. Central Heating Co., C. A. Lucky, P. J. Morrissy, A. D. Spencer, J. T. Trombley. Central Station Steam Co., J. T. Bordley. Murphy Heating Co., Geo. D. Higgins, J. F. Lewis. International Steam Pump Co., Henry Laidlaw. U. S. Heater Co., H. W. Booth.

MISSOURI.

Sedalia.—Economy Steam Htg. & Electrica Co., D. D. Hayward.

NEW YORK.

Cinton.—Clinton Gas & Electric Co., Albert Sandt.

Dunkirk.—U. S. Radiator Co., J. M. Chapman, Jr.

Lockport.—American District Steam Co., Charles R. Bishop, W. J. Kline, John D. Walsh.

New York City.—Alberger Condenser Co., D. K. Dean. "Engineering Review," F. V. Clark. "Heating & Ventilating Magazine," A. S. Armagnac. McCrum-Howell Co., J. F. Billmyre, A. B. Marshall. "Metal Worker," W. W. Macon. Positive Differential System Co., James A. Donnelly.

Rochester.—Rochester Ry. & Light Co., R. D. De Wolf.

Schenectady.—General Electric Co., R. E. Woolley.

OHIO.

Cleveland.—American Radiator Co., A. P. Seltzer, A. L. Stowell. Babcock & Wilcox Co., Wm. J. Reilly. Bishop & Babcock Co., Emmons Collins. Cleveland Lt. & Power Co., W. J. Hard. Cuyahoga Light Co., L. D. West. H. W. Johns-Manville Co., C. H. Staten. Kerr Turbine Co., and Platt Iron Works Co., Edward R. Kirby. U. S. Geo. Survey, R. H. Fernald.

Columbus.—Columbus Ry. & Lt. Co., W. A. Wolls. H. M. Bush, Consulting Engineer, represented by E. C. Johnston.

Fremont.—Fremont Yaryan Co., J. R. Brewer, T. H. Junghk.

Greenville.—Ohio Electric Light Association, D. L. Gaskill, J. H. Whiteley.

Leipsic.—Heat Light & Power Co., Cottingham & Franklin.

Ottawa.—Electric Light Co. of Ottawa, W. E. Matthews, J. W. Row.

Piqua.—Miami Light, Heat & Power Co., C. C. Custer.

Toledo.—Arbuckle-Ryan Co., E. J. Wehrly. F. Bissell Co., W. L. Bissell, F. M. Knierim. Citizens Ltg. & Heat. Co., Grant Miller. Flanner Boiler Co., D. D. Flanner. Jos. F. Grosswiller Supply Co., Jos. F. Grosswiller Ideal Engine Co., Jos. L. Skeldon. H. W. Johns-Manville Co., Arthur Taylor; National Supply Co., Frank Collins. H. T. Nye. Robert Raitz Co., H. H. Kiel. Toledo & Western R. R., G. Chapman. Toledo Railways & Light Co., W. L. Brown, J. D. Buckwell, Geo. D. Cole, John Gilmartin, Mrs. L. B. Hall, G. W. Housdorfer, Wm. Long, Wm. Pooley, Oscar F. Rabbe, W. E. Richards, A. C. Rogers, L. L. Smith. Valentine Heating Co., Robert Hett. Toledo Pipe & Light Co., J. D. Buckwell.

Tiffin.—Baxter & Brown, James Baxter. Tiffin Electric Co., Frank Espy.

PENNSYLVANIA.

Easton.—Peoples Consolidated Gas Co., E. J. Kiefer.

Pittsburgh.—American Fdry. & Construction Co., J. O. Klingelhofer, W. L. Klingelhofer, Oliver J. Haller, E. B. Tyler.

TENNESSEE.

Knoxville.—The Fulton Co., Frank C. Reeder.

WASHINGTON.

Seattle.—Seattle Electric Co., W. J. Grambs.

CANADA.

Toronto.—Monarch Supply Co., G. D. Bly.

The Metal Market

UNREST IN ALL MARKETS.

The pig iron market is much unsettled because of the action of the administration regarding freight rates. Some of the largest railroads have cancelled existing orders for equipment, which, of course, will later be reflected in the pig iron market. It comes at a time when pig iron interests could see some hope for better prices, as previous to the action of the Attorney General there was some 60,000 tons of Bessemer iron sold and somewhat over 100,000 tons of foundry iron. It may be, of course, that the buying of pig iron will keep up irrespective of the freight advances, but it is too early to tell what effect the blow will have, or whether it has been a mere Wall St. hysteria exaggerated. There is no doubt that high railway officials are trying to make things look as bad as possible. One thing is certain, however, and should not be lost sight of—the prosperity of this country depends on the agricultural conditions, and these could scarcely be better. Prices are somewhat easier than last week as follows:

No. 2 Southern foundry, Birmingham	$11.50 to $12.00
No. 1 Virginia foundry, New York	17.25 to 17.75
No. 2X Northern foundry, New York	16.75 to 17.00
No. 2 plain Northern foundry, New York	16.50 to 17.00
No. 2 Northern foundry, Chicago	16.75 to 17.25

COPPER LESS ACTIVE.

Buyers show no disposition to enter the market for new copper and sellers seem content to await developments. The market probably is less strong than a week ago, but the dullness is so pronounced that it is difficult to gain an exact opinion regarding it in either direction. The trade is awaiting with much interest the report of the Copper Producers' Association, for it is believed that the statistics will be more favorable to the holders of metal. Prices are practically without change from our last report, electrolytic being quoted at 12.75 cents and Lake at 13 cents.

LEAD.

Prices are somewhat easier, spot being obtainable at 4.37½ cents New York and 4.22½ cents St. Louis. The American Smelting & Refining Co. continues to quote shipment lead in 50 ton lots at 4.40 cents.

A STRONG TIN MARKET.

The consumption of tin during the month of May amounted to 3,600 tons and the total arrivals of tin in this country were only 2,050 tons. Stocks were drawn upon to a large extent, of course, and this has strengthened the market here to a decided degree. At times there has been a premium of ¼ to ½ cent above London parity for spot tin here. The action of the U. S. Steel Corporation in selling from its surplus stock has prevented the market from going to much higher figures. Tin markets all over the world are firmer, due to the light shipments from the far East, and it is felt should any demand come into the market, prices may stiffen appreciably. At present tin is available at 32.90 cents, a slight concession from the figures quoted a week ago.

OLD IRON.

A slight improvement is noted in some quarters, but it is so limited that it has not been reflected to any appreciable extent in the price. In New York City prices are as follows:

No. 1 yard wrought long	$12.50 to $13.00
No. 1 yard wrought short	12.00 to 12.50
Machinery cast	12.50 to 13.00
Wrought pipes and tubes	12.00 to 12.50
Wrought turnings	8.00 to 8.50
Cast borings	7.00 to 7.50
Stove plate	9.50 to 10.00

Among the Wholesalers

TO ESTABLISH BRANCH FACTORY IN TORONTO.

The American Sanitary Works, Washington, N. J., are making arrangements to establish a branch factory in Toronto, Can.

WANTS PLUMBING AND SANITARY FIXTURE CATALOGS.

J. C. Poetz, 810 The Paulsen, Spokane, Wash., wishes to express his desire, through the columns of "Domestic Engineering," for catalogs and literature on plumbing and sanitary fixtures. Will our advertisers kindly take note of this and act accordingly in the matter?

CRANE CO. TO BUILD AT OAKLAND, CAL.

It is announced that Crane Company has architects busy at work on the plans for the new building that is to be erected at Oakland, Cal., this work being done at the home office. A six-story structure is being planned, this to be on the same order as the one recently erected and occupied in San Francisco. This concern also is preparing to erect a warehouse of its own at Tacoma, Wash., and is considering the advisability of doing the same in Sacramento.

MANUFACTURERS STILL TAKING EXHIBIT SPACE.

As the time for holding the 28th annual convention of the National Association of Master Plumbers approaches, more and more interest in this great gathering of the representative men of the trade is being manifested by manufacturers of specialties in the plumbing and heating line. Since we last mentioned this attractive feature of the convention, the following firms have asked that space be reserved for their use on this occasion: Beekman Sanitary Specialty Co., New York, N. Y.; Yeomans Bros., Chicago,; Joseph A. Vogel Co., Wilmington, Del.; Kerner Manufacturing Co., Zelienople, Pa. The fact that the basement section affords conveniences for closet flushing, power demonstration of pumps and lifts, and the actual operation of heating equipment, will no doubt convince many others who are now hesitating about exhibiting that they should not overlook this exceptional opportunity of demonstrating their products before the trade.

L. M. RUMSEY MFG. CO. OPENS BATHROOM DISPLAY.

The L. M. Rumsey Mfg. Co., St. Louis, Mo., opened a permanent public display of bathroom fixtures at 3554 Olive St., in that city on Tuesday evening, May 31, by tendering a reception to the plumbers, architects and builders.

The Rumsey company opened this permanent exhibition for the display of sanitary bathroom fixtures in order that the public may familiarize itself with modern bathroom appliances, that the owner may see for himself just what style and kind of a bathroom is going into his building.

The entire first floor of these magnificent rooms is devoted to sanitary bathroom fixtures, showing all the modern designs in appliances made to fit the smallest flat or cottage to the most palatial residence or public building.

The exhibition is located centrally and convenient for women to inspect without the inconvenience of making a trip to the downtown district, being on Olive street, just east of Grand avenue.

These show rooms are free to the public every day from 8 a. m. until 6 p. m., and are for exhibition purposes only, as the company sells only to plumbers.

The Rumsey company was founded in 1865 by L. M. and M. Rumsey, and its officers are: L. M. Rumsey, Jr., president; H. S. Rumsey, vice president and general manager; J. P. Hartnett, secretary; T. O. Hyman, treasurer.

THE E. W. FISHER CO. IN HANDS OF RECEIVER.

The E. W. Fisher Co., jobbers in plumbers' and gasfitters' supplies at 811 Superior Ave., Cleveland, O., went into the hands of a receiver on Tuesday, May 31, W. M. Pattison, of the W. M. Pattison Supply Co. in that city, being appointed as such by Federal Judge Taylor to take over and manage the business. The creditors' petition states that the liabilities of the company amount to $141,000.

NOW WITH THE SPEAKMAN SUPPLY & PIPE CO.

Morris L. Horner has severed his connection with Jones Hollow Ware Co., Baltimore, Md., and is now associated with Speakman Supply & Pipe Co., Wilmington, Del., where he will take an active part in the promotion of sales of Speakman Showers and Brass Work.

THE PFAU ANNUAL OUTING.

The employees of The Pfau Manufacturing Co., Cincinnati, O., celebrated their annual outing on Saturday, June 4th, at Macke's Grove, and in spite of the inclement weather had a most enjoyable time. The first event of the program was an exciting base-ball game between the woodworking and varnish departments against the brass department, the latter winning by the close score of 13 to 11. Our correspondent reports that the feature of the game was the umpiring of Herbert Flutmus, whose decisions were unquestioned, because they were not understood by anyone present. He, however, frequently referred to a book of rules, which he claimed was presented to him by Mr. Lynch, of the National League, but which later proved to be "How to Escape the Consequences," by Lydia Pinkham. The sliding to bases was never excelled on any ball field—thanks to the liberal supply of barnyard mayonnaise, furnished by Robert Pfau. (Samples of this mayonnaise will be welcomed by "Domestic Engineering's" office.)

After the game the players and spectators were escorted to the dancing pavilion, headed by the brass band, and the balance of the day was devoted to dancing and other amusements.

NEW BUSINESS VENTURES.

Blair & Johnson is the name of a new plumbing firm at Decorah, Ia. The members of the firm are L. O. Johnson and Charles T. Blair.

Percy Williams & Co. is the style of a new plumbing business at Oconto, Wis.

The W. H. Gornto Co., Live Oak, Fla., has been incorporated to deal in plumbing specialties. The incorporators are: W. H. Gornto, O. O. Williams, R. E. McNeil, of Live Oak, Fla.

The Deerwood Heating & Plumbing Co., Brainerd, Minn., has been incorporated. The new company has secured the contract for installing the heating and plumbing plants in the new Wickstrom hotel, and also in Wilhelmina Barten's cottage.

The H. A. Turner Plumbing Co., Montgomery, Ala., has been incorporated with a capital of $2,000, to do a general plumbing business. The incorporators are: Frank Tennille, H. A. Turner and Loda Turner.

A. P. Hogle Co., Brooklyn, N. Y., has been incorporated with a capital of $1,000 to conduct a plumbing and steam fitting business. The incorporators are: Albert P. Hogle, E. 31st street and avenue; Frank Farley, 109 E. 37th St.; Hugh Collins, 624 Glenmore Ave.

George E. Gibson Co., New York, has been incorporated with a capital of $10,000 to conduct a plumbing business. The incorporators are: George E. Gibson, Miriam Gibson, both of No. 9 Cooley Place, Mt. Vernon, N. Y., James J. Thornley, No. 253 Seventh Ave., Brooklyn.

A NEW PLUMBING ORDINANCE FOR ELMIRA.

A new set of plumbing rules will become effective in Elmira, N. Y., in the very near future, the board of health having authorized the printing of the new rules which provide for more up-to-date plumbing than has been insisted upon recently. The old rules were drafted in 1903, but the many improvements in the methods of plumbing have made them obsolete.

FROM THE CALIFORNIA MASTER PLUMBERS' CONVENTION.

Most of the San Francisco Master Plumbers who made the trip to the Yosemite Valley and attended the convention of the California State Association of Master Plumbers there last week have returned but a few are still away taking a longer vacation. The meeting was a highly successful one with a large attendance, not only from the San Francisco district, but from the southern part of the state as well. The arrangements made by the San Francisco delegation for a special train was found to be a wise move, the party being landed in the Valley in the early part of the evening, all of the trip being made in the daytime. The special train from San Francisco to El Portal is said to have made the fastest time of any train between these points, although this is not the first special that has made the trip.

Sunday was spent in sight-seeing and on Monday, in accordance with the program previously arranged, the meeting was called to order by President Eustice, of Oakland.

Andrew Young, ex-president of the National Association, and formerly plumbing inspector of Chicago, was present and delivered an interesting address along the line of the duties of the master plumber and the best means of securing the adoption of better sanitary laws. In this connection the question of a state plumbing law was raised later, and while it was the opinion of some that it would not be wise to press this matter at the coming session of the legislature the proposition received considerable attention. Nothing definite was decided upon in reference to the action that would be taken by the master plumbers to attempt to secure the passage of such a law but it is probable that a bill along this line will be drafted.

At the election of officers the following were chosen to serve during the ensuing year: President, Thomas Haverty, Los Angeles; vice-president, Frank J. Klimm, San Francisco; treasurer, William F. Wilson, San Francisco; secretary, John L. E. Firmin, San Francisco.

Members of the State Board chosen were: William Rowe, Fresno; Edward W. Crowell, Los Angeles; John Cahill, Sacramento; and Chas. H. Julian, San Diego.

Fresno was chosen as the place for the next state convention, the date for which will be decided later.

There was no lack of entertainment at the convention, more attention being paid to this than is often the rule when it is held in a large city. Many trips were made to interesting points in the Valley and on Friday a grand picnic was held at Mirror Lake, a base-ball game being a feature of this. On Thursday evening a grand ball was held, and on Saturday short trips were taken prior to the return. Several of the southern California plumbers came on to San Francisco to stop a short time before resuming their journey down the coast.

After a long delay, occasioned by a lack of funds to carry out the plans on a scale originally intended, the Olympic Club of San Francisco is now preparing to go ahead with the erection of its building on Post street on the site of the old one and will shortly let a number of very large contracts. The swimming tank, that has been maintained since the fire, is being removed and will be fitted up on an adjoining lot until the new one will be ready, probably in about a year's time. The plumbing, heating and ventilating contract, together with the installation of the power plant in this structure will be one of the largest pieces of work of the kind to be done in San Francisco in the immediate future.

While a number of contracts have been let for work on the Examiner building at Third and Market streets the heating and plumbing contracts have not yet been awarded. These will probably be let shortly, however, as the steel work is going up rapidly and the roughing-in work must soon be commenced.

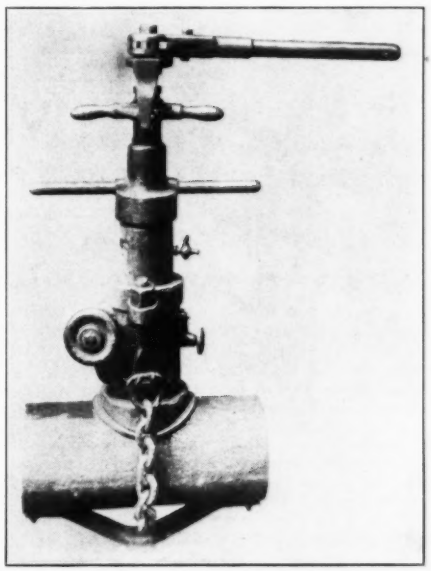
H. G. Campbell and Harry Ashman, of Oklahoma City, Okla., are at present on a visit to Monterey, Mex., with the idea of establishing a factory there for the manufacture of sanitary enameled ware.

Plans for the new building of the Pacific Hardware & Steel Co., in Portland, Ore., are being rapidly completed and it is announced that an entire city block will be covered there.

HOW LONG WILL A MUELLER TAPPING MACHINE LAST?

How long will a Mueller water-tapping machine last? The makers themselves cannot tell. They know that they will last for years. They know this fact so well that each machine is unconditionally guaranteed. That, of course, does not mean that a machine will last a lifetime. Few articles manufactured for daily use will, yet it seems that the Mueller company could guarantee this and their machines would actually make the guarantee good.

At the recent national convention of the American Water Works Association, held in New Orleans, there was



Mueller Tapping Machine After 30 Years' Service.

exhibited a Mueller water-tapping machine that had seen thirty years' hard service. With it were shown tools that had been used with the machine for eighteen years.

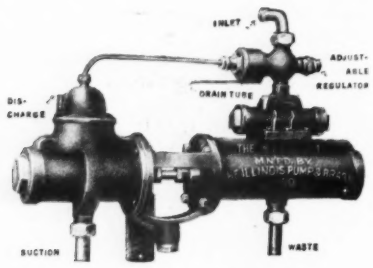
The machine and tools were loaned for the exhibit by their owner, Frank Morrison, of Bloomington, Ill., who feels as much pride in the service this pioneer tapper has

Mueller Water-Tapping Tools After 18 Years' Use.

given him as does the company in the way it has upheld their reputation. The satisfaction that Mr. Morrison felt in his machine prompted a voluntary letter to the Mueller company last January, in which he said: "I have in my possession one of your water-tapping machines I have had in use for the past 30 years, never failing to make a tap on every water service installed by me in all these years. I can truthfully say that this machine has cost me for repairs less than $10, is now in first class condition and is good for a great many more years."

THE "PERFECT" WATER-LIFT.

The Illinois Pump & Brass Co., 205-207 Bridge St., Peoria, Ill., manufactures the "Perfect" water-lift shown in the accompanying illustration. This is a device designed for pumping rain-water from the cistern to the house fixtures, bath tubs, lavatories, kitchen sinks, laundry tubs, etc., making it possible to supply these fixtures automatically with clean soft water. Among the claims made for this device, the following are the most noteworthy: Its action is easy and noiseless, although its pumping efficiency is very large; its valve motion is positive and

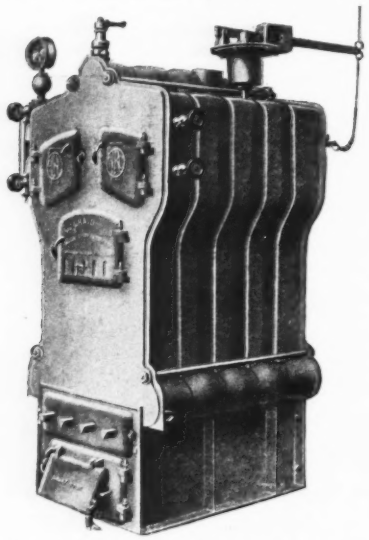


The "Perfect" Water-Lift.

its wearing parts are few; no metal wears against metal and all parts are easy of access; it is inexpensive to keep in repair and so simple in its construction that it does not require the service of an expert to repair it; it has a long stroke of the piston insuring great pumping capacity and economy in the consumption of water for motive power, and it can be used for either the direct system or with the storage tank. It is made in six sizes adopted to various city water-pressures. Interested parties can obtain full particulars from the manufacturer, upon request mentioning "Domestic Engineering."

A NEW PUSH-NIPPLE SECTIONAL BOILER.

The Williamsport Radiator Co., Williamsport, Pa., has just placed on the market a 15-in. push-nipple sectional boiler which is designed especially for residence heating, and which it expects will prove a strong competitor of the round boiler. The new boiler follows very closely the



New 15-In. Push-Nipple Sectional Boiler.

lines of the larger-sized Craig boilers which that company has manufactured for many years, having the water-ways or arms reaching from the sides of the boiler in a semi-horizontal direction to the central column, which it claims insures positive internal circulation and a steady water-line. Attention is called to the depth of the firepot, and also to the heavy corrugations of the vertical fire surfaces, and the deep overhanging lobes of the lower cross arms, all of which mean plenty of surface exposed directly to the radiant heat of the fire. Large flues permit of the absorption of the maximum number of heat units from the slowly moving gases. The triangular revolving grates are supplied to satisfy the large demand for that type of grate.

Exhaustive tests have been conducted at the factory of the company and the officers are pleased with the high efficiency developed. On these tests they have decided that for the varying conditions under which the boiler will be installed, the conservative ratings which have been placed on the boiler can be depended upon by the fitter as well as the user. For steam heating the ratings are from 300 to 675 sq. ft., and for hot-water heating 500 to 1100 sq. ft. The company claims that it is receiving orders for a great many of these little boilers, and has been turning out its full capacity of same since the completion of the patterns.

A complete new catalogue of boilers and radiators is now ready for distribution and will be mailed on request, mentioning "Domestic Engineering."

SOMETHING NEW IN HOTEL EQUIPMENT.

Much has been said and written about the equipment of the Blackstone Hotel, Chicago, and the illustration shows one reason for this widespread comment. It in-

Closet-Seat and Dressing-Chair Combined.

dicates the care and thought bestowed on the furnishing of this fashionable hostelry and also gives an idea of what manufacturers are doing to provide for the physical comfort of us busy mortals.

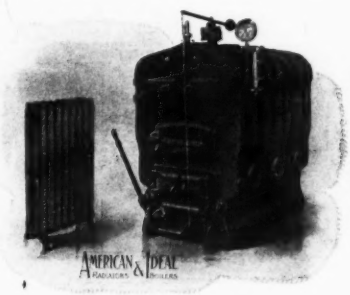
The cut shows an ingenious combination of closet-seat and dressing chair for a bath-room. The desirability of a chair in any bath room is self-evident and we do not know any instance in which utility and beauty of construction are combined to better advantage than is shown in this chair.

It is simply a chair with a double seat in which the upper one of cane-trips is hinged to the back and acts as a cover for the lower seat. The chair rests over the closet-bowl and practically hides it. The entire chair is of solid mahogany and is an exceedingly handsome specimen of the woodworkers' art, being the work of Koppen & Bros. and the Never-Split Seat Co., Evansville, Ind.

This is but a single item of the lavish but sensible equipment of the Blackstone, and no doubt the use of the chairs will soon become general, not only in hotels but in the private homes of the country.

Hand-In-Hand.

They go hand-in-hand---IDEAL Boilers and AMERICAN Radiators. Through liberal advertising, property owners know them as two necessary features to one complete whole---the working outfit. To get the best modern heating plant both are necessary.



Any one IDEAL Boiler will make hot steam or warm water a-plenty, for any brand of Radiators. A batch of AMERICAN Radiators will radiate as much heat as any other make of Boiler will furnish. But when IDEAL-AMERICAN goods are used on the same outfit you give the houseowner the combination which is best known and known as the best. There is a good deal to that.

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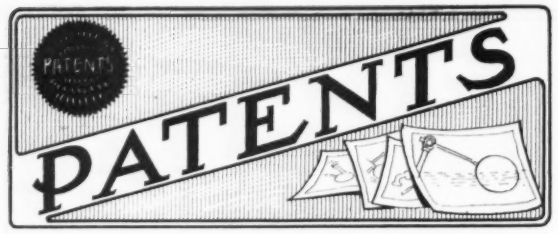
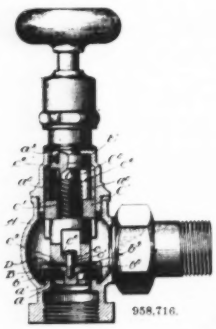
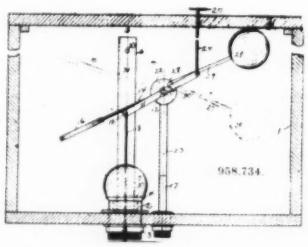
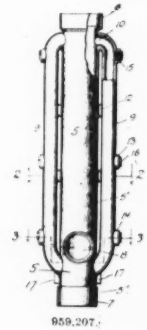


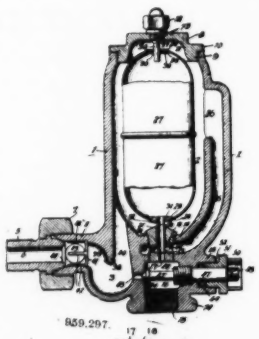
958,716. Valve. George M. Bard, Chicago, Ill., assignor to Norwall Manufacturing Company, Chicago, Ill., a corporation of Illinois. In combination, a valve having a recessed upper surface, a valve stem having a perforated wall arranged above said valve, a headed stud carried by said valve and extending through the perforation in said wall, the distance between the head of the stud and the bottom of the recess in the valve being greater than the thickness of said wall, and a resilient plate arranged between said wall and said valve and spanning said recess.

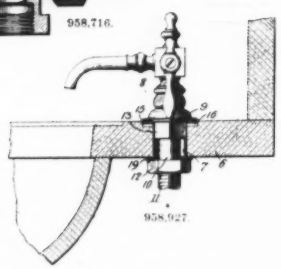
958,734. Closet-flushing Device. Charles H. Duncan, Erie, Pa. In a closet flushing device, the combination of a tank having a discharge opening; a float valve controlling the discharge opening; an inlet valve; a swinging lever 11; a rod connecting the float valve with the lever; a connection between the lever and the closet trip; a rotative

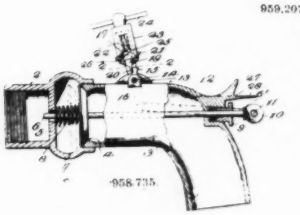


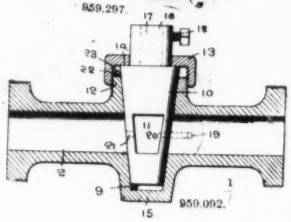












inlet valve; a rod 14 secured to said inlet valve and arranged in the path of the lever 11; means for exerting closing pressure on the rod 14; a float rod 27 having a trigger 30 for engaging the rod 14 and locking it in its upper position; a float on the rod 27 adapted to move the rod 27 and trigger on said rod to release the rod 14 and permit the closing of the inlet valve; and said closet trip.

958,735. Locking-Faucet. Joseph S. Erickson, Burbank, Cal. The combination with a faucet body, of an interior valve closing the passage therethrough, a valve rod, a lever pivoted to the outside of the faucet body and connected to the valve rod, a movable detent carried by the lever and engaging with the valve body to hold the lever in one position or another, pins projecting from the detent, and a rotatable key detachable from the lever, but engageable therewith, said key having cam faces formed thereon adapted to engage with the said pins to raise said pins and detent when the key is turned in one direction.

958,826. Faucet. Albert R. Pritchard, Rochester, N. Y.

958,832. Water-Softening Apparatus. Hezekiah Russell, Dayton, O.

958,876. Drainage Connection. Albert I. Jones, Rochester, N. Y., assignor to The Pfaudler Company, Rochester, N. Y., a corporation of New York.

958,927. Basin-Cock. John F. Kelly, Trenton, N. J. The combination with a slab having an opening, of a cock or faucet provided with an extension passing through said opening, and a locking member interposed between the upper surface of the slab and the base of the cock and positively locked against angular movement with respect to the cock and slab.

958,941. Washer and Gasket Cutter. James A. Rose, Hastings, Nebr. A machine of the class described comprising a frame including upper and lower horizontal ways arranged at different elevations, upper and lower shafts, means for slidably mounting the upper and lower shafts in the ways, means for connecting the shafts for arranging the same either in or out of alignment, operating means connected with the upper one of the shafts, and means for securing a tool to the lower shaft.

959,051. Photometer. Haakon Bryhni, Borsen, near Trondhjem, Norway.

959,090. Safety Gas-Cock. Edward Van Wickle, New York, N. Y.

952,092. Attachment for Hydrants. Winfred Hugh Wileman, Woodruff, Kans. A device comprising a tubular body having a transverse socket extending to a point below its bore and above said bore, a tapered plug received by said socket, means for the retention of said plug in operative position in said socket, said body having a venting port extending horizontally through one side thereof and at an acute angle to the axis of said body, said port having its outer end delivering in a direction about parallel with the length of said body, and said plug having a way through it of substantially the same cross-sectional area as the bore of said body, said plug also having ports, one opening laterally therethrough and communicating with said bore and said way, and the other port also being adapted to communicate with said bore and to register with said venting port as said plug is turned to cut off communication between its way and the bore of the body.

959,129. Universal Joint. Allen H. Fetzer, Galion, Ohio.

959,207. Plumbing-Fixture. Joseph L. Donat, Chicago, Ill. A unitary plumbing fitting comprising a straight main stack provided with a main opening and adapted to constitute part of both the waste and vent pipes; and a branch pipe, integral therewith, communicating with the waste and the vent ends of the main stack, and provided with one or more stubs for connection with sources of drainage.

959,258. Fire-Hydrant Coupling. Edward W. Purves, Chicago, Ill.

959,297. Steam, Air, and Water Trap Valve. John E. Boegen, Berwyn, Ill., assignor to Charles P. Monash, Chicago, Ill. In a steam, air and water trap valve, the combination of a casing inclosing a chamber, the casing having an inlet passage for water of condensation to enter the chamber, and having in its side and bottom wall a downwardly and inwardly extending conduit for escaping

water of condensation from the chamber, the inlet end of the conduit opening into the chamber with its under side in a plane below the line of flotation of a float in the chamber and having its terminal end below the chamber, a hollow float operative within the chamber of the casing and having at its upper end an unrestricted passage, furnishing, when the float is in normal position, free communication between the interior of the float and the float chamber for educting air from the chamber of the casing into the interior of the float, and a guide tube depending from the lower end of and in communication with the interior of the float, for educting air from the interior of the float and discharging the educted air below the terminal end of the side conduit, said guide tube serving as a closure for the discharge end of the downwardly and inwardly extending conduit, substantially as described.

CONTRACTS AWARDED.

Kean & Gallagher, Nashville, Tenn., have been awarded the contract for the installation of a plumbing system in the new residence of W. D. White, on Twenty-first avenue and State street. This firm does not limit itself to do work within the bounds of Nashville, but it also has on hand several large contracts in the middle part of the state.

Herbrick & Lawrence, Nashville, Tenn., have secured the contract for the installation of plumbing and heating plants in the new Orpheum Theater. The concern has also been awarded the contract to install plumbing and heating systems in the residence of L. A. Bauman.

J. H. Maguire, Baldwinville, Mass., has been awarded the contract for the installation of a modern plumbing system, a pneumatic water supply and the Putnam system of steam heating in the Mary Stowe house in that village.

The Barrett Hardware Co., Joliet, Ill., has secured the contract for the installation of the plumbing and heating system at the new Banks flat.

The Fort Dodge Plumbing & Heating Co., Fort Dodge, Ia., has secured the contract for the plumbing and heating in the Snell building.

Eau Claire Cornice & Heating Co., Eau Claire, Wis., has been awarded the contracts for heating the E. C. Tunk's new factory and the new Sacred Heart school. A. Moe, Eau Claire, Wis., secured the contract for the plumbing in the new Sacred Heart school.

Grosvold Bartin Galvanizing Co., Eau Claire, Wis., will install the heating system in the new Episcopal Chancel and Guild.

The Robinson Hardware Co., Gilroy, Cal., has been awarded the contract for the installation of an up-to-date plumbing system in the new cottage being erected by Henry Miller at Mount Madonus.

The L. P. Hazen Co., Cincinnati, O., has secured the contract for the construction of the Freeman Avenue bathhouse at a consideration of $23,800.

J. W. Heckert, Columbus, O., has secured the contract for the installation of a new heating system at the Children's home. Consideration, $4,653.

R. T. Lutz, New Orleans, La., has been awarded the contract for the installation of the plumbing system in the city hall in that city.

Logan & Giertz, Elgin, Ill., have been awarded the contract for the construction of a septic tank at Woodstock at a consideration of $3,000.

Dale & Sattler, Globe, Ariz., have secured a contract for installing a new steam-heating plant in the court house for $2,363.

The Columbus Heating and Ventilating Co., Columbus, O., has been awarded the contract for heating the new Heyl avenue and West Brad street buildings at a consideration of $6,396 per building.

John B. Macfarlane, Cumberland, Md., has been awarded the contract for remodeling the heating and ventilating system in the court house in that city. Consideration, $3,725.

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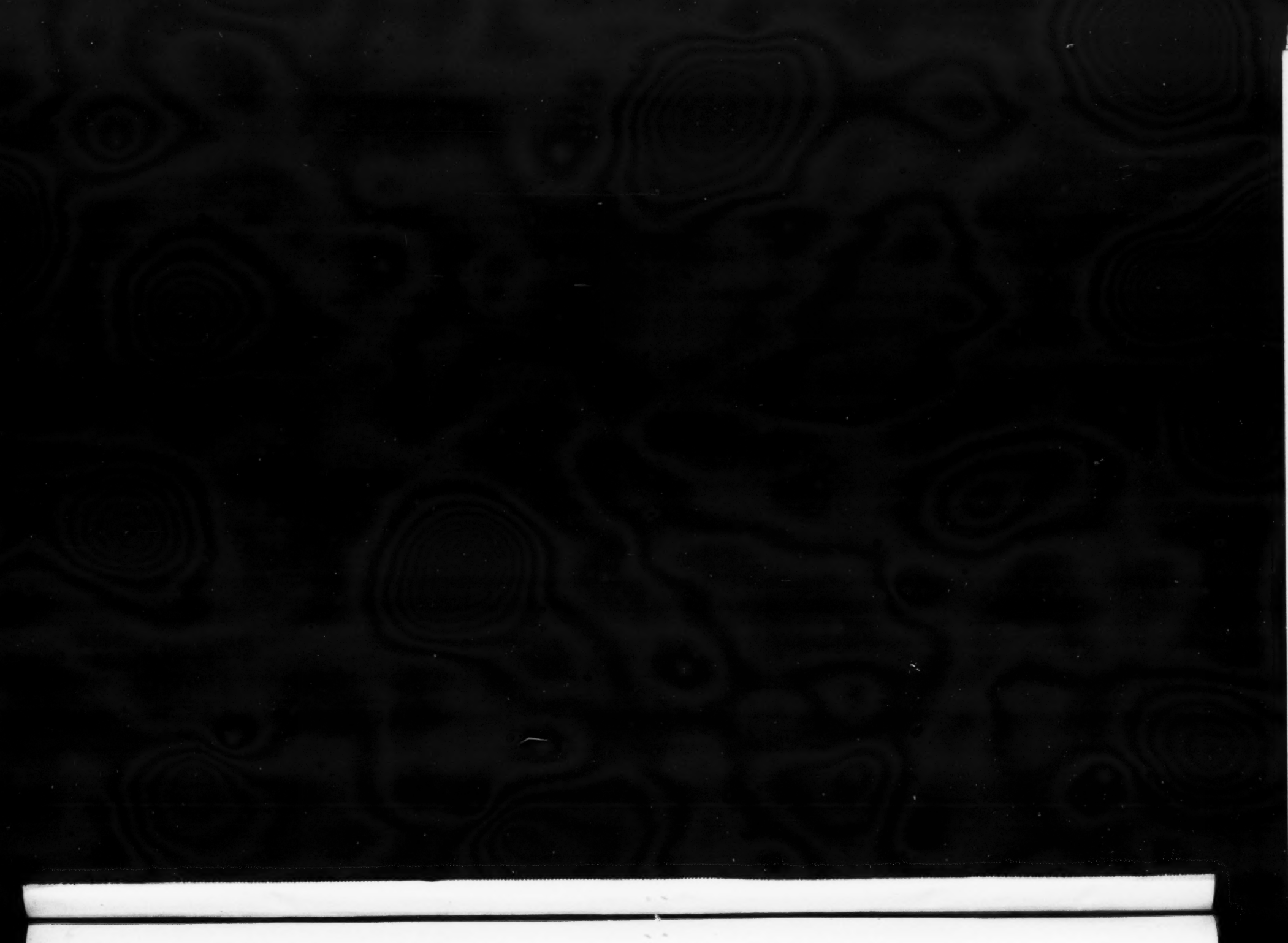
SEND FOR A COPY

The revised edition of our booklet "How to Properly Design and Install The Honeywell System of Hot-Water Heating" has just been received from the press and it is now ready for distribution. A copy will be mailed to anyone in the trade for the asking.

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